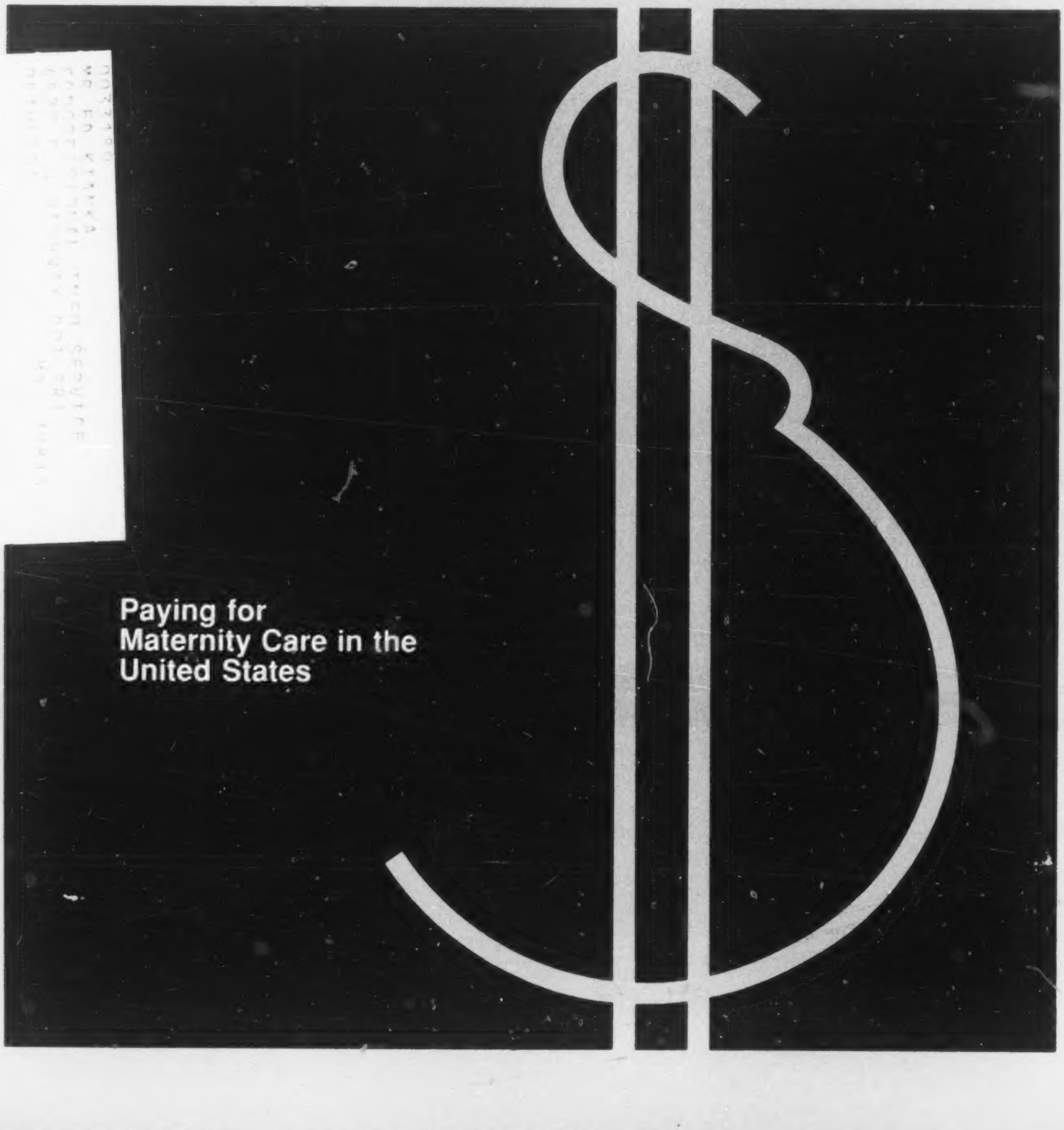
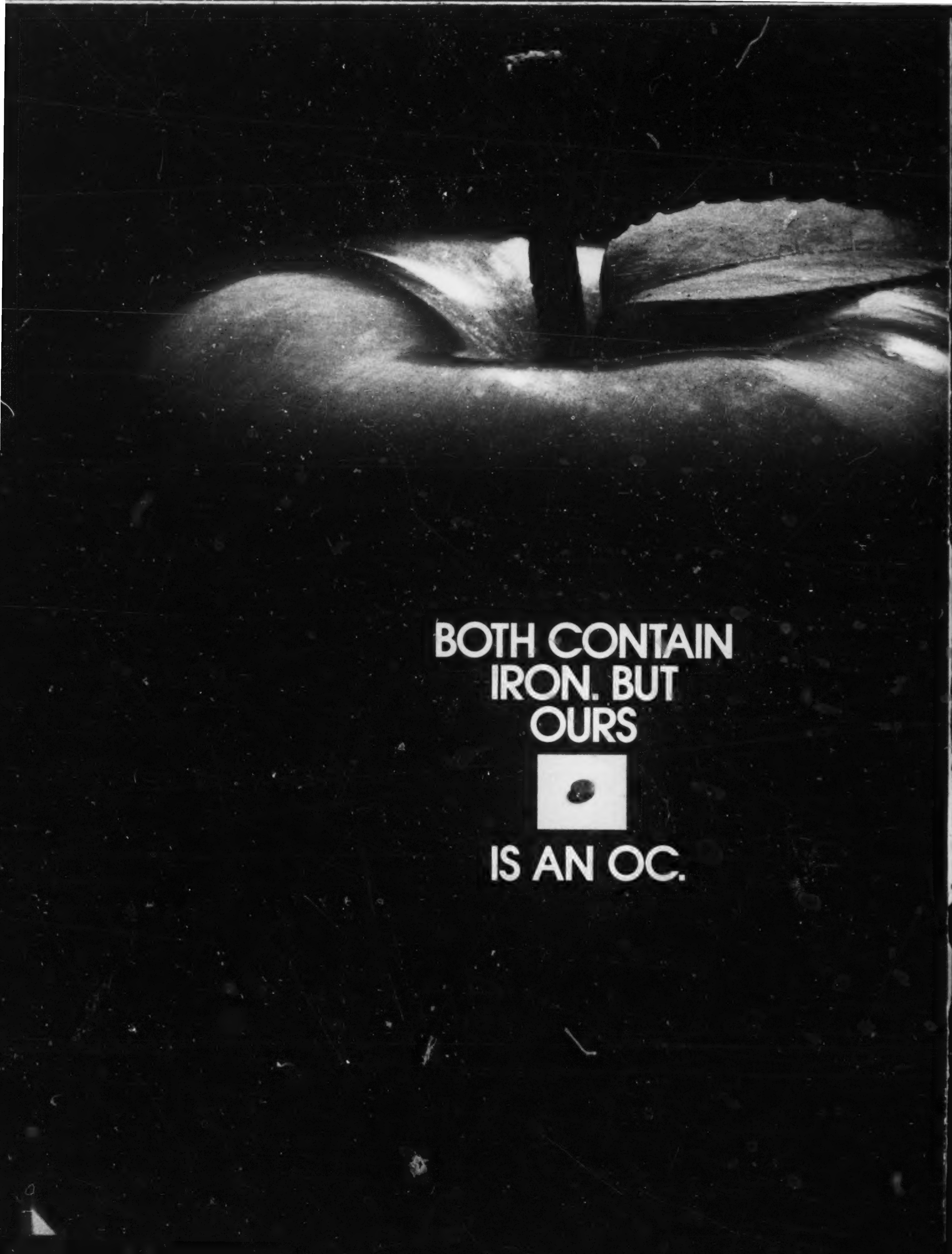
Family Planning
Perspectives
Volume 19, Number 5, September/October 1987

Delay in Obtaining Prenatal Care
Maternity Care in Western Europe
Differentials in Infant Mortality Risk



Paying for Maternity Care in the United States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LOESTRIN® Fe

(1.5 mg norethindrone acetate and 30 mcg ethinyl estradiol tablets, USP)

IRON BUILDS COMPLIANCE

Before prescribing, please see full prescribing information. A Brief Summary follows:
INDICATIONS AND USAGE: Loestrin is indicated for the prevention of pregnancy in women who elect to use OCs as a method of contraception. **Dose-Related Risk of Thromboembolism from Oral Contraceptives:** Two studies have shown a positive association between the dose of estrogens in OCs and the risk of thromboembolism. For this reason, it is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The OC product prescribed for any given patient should be that product containing the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance. It is recommended that new acceptors of OCs be started on preparations containing 0.05 mg or less of estrogen. **CONTRAINDICATIONS:** OCs should not be used in women with any of the following conditions: 1. Thrombophlebitis or thromboembolic disorders. 2. A past history of deep vein thrombophlebitis or thromboembolic disorders. 3. Cerebral vascular or coronary artery disease. 4. Known or suspected carcinoma of the breast. 5. Known or suspected estrogen dependent neoplasia. 6. Undiagnosed abnormal genital bleeding. 7. Known or suspected pregnancy (see Warning No. 5). 8. Benign or malignant liver tumor that developed during the use of OCs or other estrogen containing products.

WARNINGS

> **Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.**
>
> The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems.* An increased risk of thromboembolic and thrombotic disease associated with the use of OCs is well established. Three principal studies in Great Britain and three in the US have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic. These studies estimate that users of OCs are 4 to 11 times more likely than nonusers to develop these diseases without evident cause. **Cerebrovascular Disorders:** In a collaborative American study of cerebrovascular disorders in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than in nonusers and the risk of thrombotic stroke was 4 to 9.5 times greater in users than in nonusers. **Myocardial Infarction:** An increased risk of MI associated with the use of OCs has been reported, confirming a previously suspected association. These studies, conducted in the UK, found, as expected, that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia), the higher the risk of developing MI, regardless of whether the patient was an OC user or not. OCs, however, were found to be a clear additional risk factor. In terms of relative risk, it is estimated that OC users who do not smoke (smoking is considered a major predisposing condition to MI) are about twice as likely to have a fatal MI as nonusers who do not smoke. OC users who are also smokers have about a 5-fold increased risk of fatal infarction compared with users who do not smoke, but about a 10- to 12-fold increased risk compared with nonusers who do not smoke. Furthermore, the amount of smoking is an important factor. In determining the importance of these relative risks, however, the baseline rates for various age groups must be given serious consideration. The importance of other predisposing conditions mentioned above in determining relative and absolute risks has not yet been quantified; it is quite likely that the same synergistic action exists, perhaps to a lesser extent. **Risk of Dose:** In an analysis of data derived from several national adverse reaction reporting systems, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in OCs. Preparations containing 100 mcg or more of estrogen were associated with a higher risk of thromboembolism than those containing 50 to 80 mcg of estrogen. Their analysis did suggest, however, that the quantity of estrogen may not be the sole factor involved. This finding has been confirmed in the US. **Persistence of Risk:** In confirmation of earlier reports, two studies have suggested that an increased risk may persist for as long as 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI. In addition, one prospective study suggested the persistence of risk for subarachnoid hemorrhage. **Estimate of Excess Mortality from Circulatory Diseases:** A large prospective study carried out in the UK estimated the mortality rate per 100,000 women per year from diseases of the circulatory system for users and nonusers of OCs according to age, smoking habits, and duration of use. The overall excess death rate annually from circulatory diseases for OC users was estimated to be 20 per 100,000 (ages 15 to 34 – 5/100,000; ages 35 to 44 – 33/100,000; ages 45 to 49 – 140/100,000), the risk being concentrated in older women, in those with a long duration of use, and in cigarette smokers. It was not possible, however, to examine the interrelationships of age, smoking, and duration of use, nor to compare the effects of continuous versus intermittent use. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all of these deaths occurred in women 35 or older. Until larger numbers of women under 35 with continuous use for 5 or more years are available, it is not possible to assess the magnitude of the relative risk for this younger age group. The available data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. The estimates of risk of death for each method include the combined risk of the contraceptive method (eg, thromboembolic and thrombotic disease in the case of OCs) plus the risk attributable to pregnancy or abortion in the event of method failure. This latter risk varies with the effectiveness of the contraceptive method. The study concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of OCs in women over 40 who smoke. The lowest mortality is associated with the condom or diaphragm backed up by early abortion. The risk of thromboembolic and thrombotic disease associated with OCs increases with age after approximately age 30 and, for MI, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preeclamptic toxemia and especially by cigarette smoking. The physician and the patient should be alert to the earliest manifestations of thromboembolic and thrombotic disorders (eg, thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). If any of these occurs or is suspected, the drug should be discontinued immediately. A 4- to 6-fold increased risk of postsurgical thromboembolic complications has been reported in OC users. If feasible, OCs should be discontinued at least 4 weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization. 2. *Ocular Lesions.* There have been reports of neuro-ocular lesions, such as optic neuritis or retinal thrombosis, associated with the use of OCs. Discontinue OC medication if there is unexplained, sudden or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma.* Long-term continuous administration of either natural or synthetic estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver. Certain synthetic progestogens, none currently contained in OCs, have been noted to increase the incidence of mammary nodules, benign and malignant, in dogs. In humans, three case control studies have reported an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women. One publication reported on the first 21 cases submitted by physicians to a registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the cases found in women without predisposing risk factors for adenocarcinoma of the endometrium (eg, irregular bleeding at the time OCs were first given, polycystic ovaries), nearly all occurred in women who had used a sequential OC. These products are no longer marketed. No evidence has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs. Several studies have found no increase in breast cancer in women taking OCs or estrogens. One study, however, while also noting no overall increased risk of breast cancer in women treated with OCs, found an excess risk in the subgroups of OC users with documented benign breast disease. A reduced occurrence of benign breast tumors in users of OCs has been well documented. In summary, there is at present no confirmed evidence from human studies of an increased risk of cancer associated with OCs. Close clinical surveillance of all women taking OCs is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms should be monitored with particular care if they elect to use OCs. 4. *Hepatic Tumors.* Benign hepatic adenomas have been found to be associated with the use of OCs. One study showed that OC formulations with high hormonal potency were associated with a higher risk than lower potency formulations. Although benign, hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage. This has been reported in short-term as well as long-term users of OCs. Two studies relate risk with duration of use of the contraceptive, the risk being much greater after 4 or more years of OC use. While hepatic adenoma is a rare lesion, it should be considered in women presenting with abdominal pain and tenderness, abdominal mass or shock. A few cases of hepatocellular carcinoma have been reported in women taking OCs. The relationship of these drugs to this type of malignancy is not known at this time. 5. *Use in or Immediately Preceding Pregnancy; Birth Defects in Offspring, and Malignancy in Female Offspring.* The use of female sex hormones – both estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. It has been shown that females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been demonstrated to be of the order of 1 in 1,000 exposures or less. Although there is no evidence at the present time that OCs further enhance the risk of developing this type of malignancy, such patients should be monitored with particular care if they elect to use OCs. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether this condition is a precursor of vaginal malignancy. Male children so exposed may develop abnormalities of the urogenital tract. Although similar data are not available with the use of other estrogens, it cannot be presumed that they would not induce similar changes. An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of sex hormones, including OCs, in pregnancy. One case control study has estimated a 4.7-fold increase in risk of limb reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb reduction defects in exposed fetuses is somewhat less than 1 in 1,000 live births. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. It is recommended that for any patient who has missed two consecutive periods, pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule, the possibility of pregnancy should be considered at the time of the first missed period, and further use of OCs should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuation of the pregnancy should be discussed in the light of these risks. It is also recommended that women who discontinue OCs with the intent of becoming pregnant use an alternate form of contraception for a period of time before attempting to conceive. Many clinicians recommend 3 months although no precise information is available on which to base this recommendation. The administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy. 6. *Gallbladder Disease.* Studies report an increased risk of surgically confirmed gallbladder disease in users of OCs and estrogens. In one study, an increased risk appeared after 2 years of use and doubled after 4 or 5 years of use. In one of the other studies, an increased risk was apparent between 6 and 12 months of use. 7. *Carbohydrate and Lipid Metabolic Effects.* A decrease in glucose tolerance has been observed in a significant percentage of patients on OCs. For this reason, prediabetic and diabetic patients should be carefully observed while receiving OCs. An increase in triglycerides and total phospholipids has been observed in patients receiving OCs. The clinical significance of this finding remains to be defined. 8. *Elevated Blood Pressure.* An increase in blood pressure has been reported in patients receiving OCs. In some women, hypertension may occur within a few months of beginning OC use. In the first year of use, the prevalence of women with hypertension is low in users and may be no higher than that of a comparable group of nonusers. The prevalence in users increases, however, with longer exposure, and in the fifth year of use is two and a half to three times the reported prevalence in the first year. Age is also strongly correlated with the development of hypertension in OC users. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure when given OCs. Hypertension that develops as a result of taking OCs usually returns to normal after discontinuing the drug. 9. *Headache.* The onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of OCs and evaluation of the cause. 10. *Bleeding Irregularities.* Breakthrough bleeding, spotting and amenorrhea are frequent reasons for patients discontinuing OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, nonfunctional causes should be borne in mind. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy. If pathology has been excluded, time or a change to another formulation may solve the problem. Changing to an OC with a higher estrogen content, while potentially useful in minimizing menstrual irregularity, should be done only if necessary since this may increase the risk of thromboembolic disease. Women with a past history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of OCs. Women with these preexisting problems should be advised of this possibility and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may also occur in women without previous irregularities. 11. *Ectopic Pregnancy.* Ectopic as well as intrauterine pregnancy may occur in contraceptive failures. 12. *Breast Feeding.* OCs given in the postpartum period may interfere with lactation. There may be a decrease in the quantity and quality of the breast milk. Furthermore, a small fraction of the hormonal agents in OCs has been identified in the milk of mothers receiving these drugs. The effects, if any, on the breast-fed child have not been determined. If feasible, the use of OCs should be deferred until the infant has been weaned. **PRECAUTIONS: General:** 1. A complete medical and family history should be taken prior to the initiation of OCs. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical examination. 2. Under the influence of estrogen-progestogen preparations preexisting uterine leiomyomata may increase in size. 3. Patients with a history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the medication and use an alternative method of contraception in an attempt to determine whether the symptom is drug related. 4. OCs may cause some degree of fluid retention. They should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma, or cardiac or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence of jaundice while receiving OC therapy. If jaundice develops in any patient receiving such drugs, the medication should be discontinued. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution. 7. OC users may have disturbances in normal tryptophan metabolism which may result in a relative pyridoxine deficiency. The clinical significance of this is undetermined. 8. Serum folate levels may be depressed by OC therapy. Since the pregnant woman is predisposed to the development of folate deficiency and the incidence of folate deficiency increases with increasing gestation, it is possible that if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and complications attributed to this deficiency. 9. The pathologist should be advised of OC therapy when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs: a. Increased sulfobromophthalein retention; b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability; c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered; d. Decreased pregnanediol excretion; e. Reduced response to metyrapone test. **INFORMATION FOR THE PATIENT:** See Patient Labeling. **DRUG INTERACTIONS:** Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin. **CARCINOGENESIS, PREGNANCY, NURSING MOTHERS:** See Contraindications and Warnings. **ADVERSE REACTIONS:** An increased risk of the following serious adverse reactions has been associated with the use of OCs: Thrombophlebitis; pulmonary embolism; coronary thrombosis; cerebral thrombosis; cerebral hemorrhage; hypertension; gallbladder disease; benign hepatomas; congenital anomalies. There is evidence of an association between the following conditions and the use of OCs, although additional confirmatory studies are needed: Mesenteric thrombosis; neuro-ocular lesions, eg, retinal thrombosis and optic neuritis. The following adverse reactions have been reported in patients receiving OCs and are believed to be drug related: Nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10 percent or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally: Gastrointestinal symptoms (such as abdominal cramps and bloating); breakthrough bleeding; spotting; change in menstrual flow; dysmenorrhea; amenorrhea during and after treatment; temporary infertility after discontinuance of treatment; edema; chloasma or melasma which may persist; breast changes: tenderness, enlargement and secretion; change in weight (increase or decrease); change in cervical erosion and cervical secretion; possible diminution in lactation when given immediately postpartum; cholestatic jaundice; migraine; increase in size of uterine leiomyomata; rash (allergic); mental depression; reduced tolerance to carbohydrates; vaginal candidiasis; change in corneal curvature (steepening); intolerance to contact lenses. The following adverse reactions have been reported in users of OCs, and the association has been neither confirmed nor refuted: Premenstrual-like syndrome; cataracts; changes in libido; chorea; changes in appetite; cystitis-like syndrome; headache; nervousness; dizziness; hirsutism; loss of scalp hair; erythema multiforme; erythema nodosum; hemorrhagic eruption; vaginitis; porphyria; hemolytic uremic syndrome. **ACUTE OVERDOSE:** Serious effects have not been reported following acute ingestion of large doses of OCs by young children. Overdosage may cause nausea, and withdrawal bleeding may occur in females. **HOW SUPPLIED:** Loestrin **21** 1/20 is available in compacts each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1/20 is available in compacts each containing 21 white tablets and 7 brown tablets. Each white tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills. Loestrin **21** 1.5/30 is available in compacts each containing 21 tablets. Each tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1.5/30 is available in compacts each containing 21 green tablets and 7 brown tablets. Each green tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills.

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Morris Plains, New Jersey 07950

Family Planning
Perspectives

ISSN 0014-7354
Volume 19, Number 5, September/October 1987

Published bimonthly by
The Alan Guttmacher Institute,
at 111 Fifth Avenue,
New York, N.Y. 10003.

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Second-class postage paid at New York, N.Y., and additional mailing offices. Postmaster: Send address changes to Family Planning Perspectives, 111 Fifth Avenue, New York, N.Y. 10003.

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Paying for Maternity Care in the United States

By Rachel Benson Gold, Asta M. Kenney and Susheela Singh

> **"Some 14.6 million women of reproductive age [are] uncovered by private *or* public insurance . . . for maternity care. More than half a million women who have no coverage give birth each year. These births represent 15 percent of all that occur."**

Introduction

Giving birth to a child is an almost universal human experience, a process associated in the minds of most people with joy and fulfillment. Pregnancy and childbirth are not, however, without risks—risks that are sometimes serious and, occasionally, even fatal. Medical monitoring and the provision of nutritional, educational and other support services and health care before, during and after the birth are, therefore, essential to ensure the best possible outcome for the mother and her baby. Not all Americans, however, can take high-quality maternity care for granted. In some parts of the country, distance from a doctor or hospital is a problem; in others, medical personnel are in short supply. Some physicians are unwilling to accept high-risk patients, out of fear of expensive malpractice suits. Other doctors are reluctant to accept poor patients if they anticipate that their bills will not be paid, or that they will receive inadequate reimbursement from public insurance programs.

Not all the shortcomings in maternity care are attributable to the service delivery system. But clearly, one important factor that contributes to the inability of many expectant mothers to obtain appropriate maternity care in a timely manner is the cost of having a baby. Even if the pregnancy and birth are uneventful, the charges are high, and if there *are* complications, a young couple without health insurance can be faced with bills amounting to more than they earn in an entire year. Although most people have insurance that covers the costs of maternity care, many people do not have any insurance coverage, or their coverage is inadequate.

Maternity care, like general health care in the United States, is paid for by a mix of private health insurance, public financing systems and out-of-pocket payments by the patient and the patient's family. Coverage, however, is by no means universal. Some 35 million Americans under age 65 in 1984 had no health insurance of any kind, and that number is rising.[1] In the late 1970s, 13–14 percent of those under age 65 had no insurance; by 1984, that fraction had increased to 17 percent.[2]

Financing Maternity Care

Obtaining adequate financing is especially difficult for women seeking maternity care. One reason is that women having babies tend to fall into those age-groups and income categories that are most likely to be without health insurance. They tend to be young (almost half are under age 25[3]) and to be employed in entry-level, low-paying jobs with few fringe benefits, or in part-time jobs with no such benefits. In 1978, Congress sought to improve coverage of maternity care under employment-related insurance plans by passing the Pregnancy Discrimination Act. Even today, however, many restrictions—such as waiting periods for private insurance coverage and complex and time-consuming eligibility determinations under Medicaid, the major governmental health program for the poor—tend to stand in the way of attainment of the widely accepted societal goal of having women begin prenatal care as early in the pregnancy as possible in order to improve their chances of having a healthy baby.

When people who have no insurance need medical care, they must depend on their own resources. Some assume large debts, which may or may not be paid. If not paid fully, the burden of the unpaid portion—called uncompensated care—falls first on the health care providers, but, ultimately, on the taxpayer at the federal, state or local level, or on employers and employees through increased health insurance premiums. Because women of reproductive age are less likely than most other people to have health insurance, and because medical technology has made it possible to save very immature or severely ill infants—albeit at a very high cost—a substantial proportion of the uncompensated care burde[illegible]rried by society is the result of ho[illegible]vices provided to maternity p[illegible]eir babies.

Rachel Benson Gold is associate for policy analysis, Asta M. Kenney is associate for policy development and Susheela Singh is senior research associate with The Alan Guttmacher Institute (AGI). This article is adapted from the AGI study *Blessed Events and the Bottom Line: Financing Maternity Care in the United States*, New York, 1987. The research upon which the article and book are based was generously supported by The Pew Memorial Trust. The authors wish to acknowledge the invaluable assistance of numerous staff members: Aida Torres was responsible for the analysis of some of the surveys fielded by the AGI. Jacqueline Darroch Forrest, Jeanette Johnson, Richard Lincoln, Jane Murray, Cory Richards and Jeannie I. Rosoff were closely involved in the development and presentation of the research findings and reviewed the manuscript at various stages. The authors also gratefully acknowledge the assistance of Lisa Bezak, Maura Fitzpatrick, Jennifer Macias and Michael Putnam. The recommendations were developed with the assistance of a panel of expert advisors chaired by C. Arden Miller (see footnote, page 204). The book upon which this article is based is available from the Institute at $12.00 per copy. *The Financing of Maternity Care in the United States*, a much more detailed presentation of the statistical information than is carried in this article or in *Blessed Events and the Bottom Line*, is available from the Institute for $30.00 per copy.

Falling Through the Cracks

This article demonstrates how the current crazy quilt of programs and policies through which maternity care is financed in the United States has left some 14.6 million women of reproductive age uncovered by private *or* public insurance programs for maternity care. More than half a million women who have no coverage give birth each year; these births represent 15 percent of all that occur. Although nearly all expectant mothers eventually deliver in hospitals, a substantial number arrive there with no records, having had little, and sometimes no, prenatal care, and are cared for by doctors who have never seen them before. Many will have faced a host of obstacles during pregnancy that could easily turn what is supposed to be a happy event into a period of extraordinary stress for themselves and their families. Such obstacles may also lead to unnecessary, dangerous and occasionally fatal complications for the mother and infant. These complications, in turn, can result in considerable financial costs for the individuals involved—and for society—to pay for the intensive curative care required to compensate for the preventive care that was not provided during pregnancy.

Recent studies have illustrated the health benefits to the mother and her child that are derived from high-quality prenatal and obstetric care, and the financial benefit to society of providing such care.[4] Inadequate or insufficient care may be one reason that the infant and maternal mortality rates and the percentage of low-birth-weight babies born in the United States are higher than those recorded by other industrialized countries. The U.S. infant mortality rate is almost twice the rate of Finland, Japan and Sweden;[5] the maternal mortality rate is considerably higher than that of Canada and most Scandinavian countries;[6] and the percentage of newborns weighing under 2,500 g (approximately 5.5 pounds) is twice as high in the United States as it is in Norway.[7] Although we are very good in the United States at saving the lives of low-birth-weight babies, we are clearly not as successful as other countries in preventing the occurrence of the condition in the first place. Of special concern is the uniquely poor pregnancy outcomes experienced by the most vulnerable in our society—the poor, the very young, minorities and the unmarried.

Financing problems, of course, are not the only reasons for the maldistribution and inadequate provision of maternity care services in the United States. Another problem is the lack of an agreed definition of what the most important components of high-quality maternity care consist of, beyond very basic care. In particular, the relative value of some of the newer technological interventions—the value of ultrasound, for example, to determine fetal position and diagnose fetal defects, as compared with that of such behaviorally oriented interventions as antismoking programs or nutrition counseling—is a matter of controversy. (Even where there is agreement on the necessity of a treatment or procedure—the injection of Rh immune globulin, for example, to save the babies of Rh-negative mothers—insurance does not always cover the cost.) And no matter how maternity care services are financed, there has clearly been a failure to expand, or even maintain, networks of health facilities at the community level that are capable of extending care to all who need it. The withdrawal of physicians from obstetrics practice—believed to be largely because of the rising cost of malpractice and liability insurance—is also reason for increasing concern.

Notwithstanding all these other problems, a more rational system of financing maternity care would increase the early and appropriate use of prenatal services and thereby contribute to the health of women and their babies. It would also help reduce the stress, discontinuity of care and humiliation that so many women and their families must now face in order to obtain the help they need.

Having a Baby in America

Some 3.7 million women—about seven percent of all U.S. women of childbearing age—have a baby each year. Although women are having fewer children than they used to, eight out of 10 have at least one child, and mothers typically have had two or three children by the end of their reproductive years.[8]

As may be seen in Table 1, most women have babies when they are young and their family income is modest. The typical woman who gives birth is in her 20s, is married, white, has an annual family income of just under $20,000, has at least a high school education, and is employed, or married to a man who is employed, full-time.[9] About four in 10, however, are unemployed or work only part-time; more than one-quarter are poor* and four in 10 have family incomes of less than $15,000 a year. The proportion of babies that are born to unmarried women, to women over age 35 and to blacks—population groups considered at higher-than-average risk of adverse birth outcome—has been rising, whereas the proportion born to teenagers and to women with less than a high school education—also considered high-risk groups—has been declining.[10]

Table 1. Number of women giving birth, by selected characteristics, United States, 1985

Characteristic	Number (in millions)
Age-group	
15–19	0.5
20–24	1.1
25–29	1.2
30–34	0.7
≥35	0.2
Race	
White	2.9
Black	0.6
Other	0.2
Marital status	
Married	2.9
Not married	0.8
Poverty status	
<100%	1.0
100–200%	0.8
≥200%	1.9
Years of education	
<12	0.7
12	1.5
>12	1.5
Employment status	
Unemployed	0.5
Part-time/year	0.9
Full-time	2.3

Sources: For poverty and employment data: AGI tabulations from U.S. Bureau of the Census, Current Population Survey, Mar. 1985; for age, marital status, race and education data: see reference 3.

The number of babies born every year in the United States has varied little during the 1980s.[11] Although childbearing is fairly predictable from an actuarial point of view, it is much more difficult for an individual woman to anticipate the likelihood that she will become pregnant in any given year. As a result of this uncertainty, when she learns she is pregnant she may not have made financial plans to cover the costs of having a baby. Surveys show that every year, about four in 10 births were not planned at the time of conception. Among teenagers, never-married women and those on Medicaid, more like 6–8 in 10 births were unplanned. The level of unintended births is also at least 50 percent among women in their early 20s, blacks, previously married women and those of low income. Even among women who are in their late 20s and 30s, married and more affluent, about 30 percent of births are unplanned.[12] (The proportion of unplanned *pregnancies* is, of

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*The term "poor" refers to individuals whose family income is below 100 percent of the federal poverty level—$9,300 for a family of three in 1987. (See: *Federal Register*, **42**:5340, 1987.)

Table 2. Percentage distribution of women giving birth, by occurrence of complications* during pregnancy or birth; and percentage distribution of newborns, by occurrence of complications at birth, according to birth status; 1984 (N=3.7 million)

Complication	%
Women	
No complications	41
Complications of pregnancy	13
Major	(12)
Not major	(1)
Complications of labor	30
Major	(11)
Not major	(19)
Preexisting health conditions	16
Major	(7)
Not major	(9)
Newborns	
No complications	80
Minor complications	10
Full term	(8)
Premature	(2)
Major complications	10
Full term	(6)
Premature	(2)
Extremely immature	(1)
Infant death	(1)
Total	100

*Complications classified according to diagnosis listed first in source.

Source: AGI tabulations from DHHS, National Hospital Discharge Survey, 1984.

course, considerably higher than that, as evidenced by the 1.6 million abortions that have been occurring in the United States each year.[13])

Maternal and Newborn Complications

Because pregnancy is so often unpredictable, it can be disruptive and involve unexpected costs. From a physical point of view, however, pregnancy and childbirth is a very safe experience for most women. However, the experience is not risk-free. About eight women in every 100,000 die from complications associated with childbearing (although the mortality rate among black women is three and one-half times greater than the rate among whites).[14] Just four in 10 mothers go through pregnancy and childbirth without *any* medical problem, while six in 10 are treated for some complication. Three in 10 are reported by their physicians to have had major complications,* which can result in considerably increased costs of medical care (see top panel of Table 2).

Doctors report that nearly one in seven mothers have problems *during* pregnancy, and about nine in 10 of those problems are major. Some of the more common major problems are conditions that may result in the early onset of labor; conditions that can cause fetal distress; multiple pregnancies; and infections of the genitourinary tract.

Overall, the most common health problems—experienced by three in 10 mothers—are complications that occur during labor or delivery: umbilical cord complications; obstructed labor; breech (feet-first) presentation of the baby; severe lacerations of the perineal muscle, cervix or vagina; and severe postpartum hemorrhage. Slightly over one-third of all complications during this period are considered major.

Nearly one in six mothers have health problems related to preexisting conditions, such as disproportion or abnormality of the pelvis (which usually results in a cesarean delivery), infectious diseases, high blood pressure, anemia, diabetes or Rh incompatibility; more than four in 10 of these problems are considered major.[15]

Thirty-six percent of women who have any complication during pregnancy and delivery experience more than one problem. About two out of every 10 mothers are delivered by cesarean section,[16] and almost half of these procedures, according to the women's doctors, are performed because of major pregnancy complications. (Previous cesarean delivery, the reason given for about one-third of all cesarean sections performed in 1985, is not considered to be a major complication.)

Understandably, health problems in pregnancy and childbirth are more common among the vulnerable subgroups already mentioned, such as teenagers and older women. An illustration of this tendency is the fact that 41 percent of mothers under the age of 35 have experienced an uncomplicated pregnancy and delivery, compared with only 33 percent of mothers 35 and older.[17]

Most newborns are healthy. But about 20 percent—some 770,000 each year—are born with a health problem (see bottom panel, Table 2). About 335,000—10 percent of babies born each year—have serious medical conditions, and of these, some 31,000 die in the first month after delivery.[18] About seven percent of all newborns weigh less than 2,500 grams.[19] Such low birth weight is the major factor associated with infant mortality.[20] One-fifth of white babies, but one-quarter of blacks, are born with a health problem;[21] in the first year of life, the rate of death among black infants is two times higher than the rate among whites.[22] The prevalence of low birth weight has not declined during the 1980s, and the infant mortality rate has declined only slightly.[23]

Poverty increases the risk of poor birth outcomes, especially if it accompanies other characteristics that are associated with health disadvantage.[24] Slightly more than one-quarter of all births in the United States occur among poor women. Four-fifths of unmarried women, two-thirds of blacks, three-fifths of teenagers and two-fifths of Hispanics who give birth are living in poverty.[25] Birthrates are about twice as high among poor as among nonpoor women, and are 30 percent higher among black women than among whites.[26]

Prenatal Care

There is general agreement that prenatal care should begin early and that it should continue throughout the pregnancy. It is nevertheless clear that many women are not obtaining prenatal care early enough, do not make enough prenatal visits, or do not get care throughout pregnancy. Some get no care at all. Thirty-four percent of pregnant women—some 1.3 million each year—are getting what is generally considered insufficient prenatal care (see Table

Table 3. Percentage of mothers obtaining insufficient prenatal care, by selected characteristics, according to adequacy of care, 1980

Characteristic	Total	Less than adequate	Poor or none
All mothers	**34**	**26**	**8**
Age-group			
<20	56	39	16
20–34	36	27	8
≥35	26	21	5.0
Race			
White	30	24	6
Black	51	37	14
Hispanic	47	32	14
Marital status			
Married	29	24	5
Unmarried	58	38	20
Poverty status*			
<100%	47	36	11
100–199%	30	25	5
≥200%	24	20	4
Years of education			
<12	53	37	16
12	33	26	7
>12	23	19	4

*Married women only.

Source: AGI tabulations from DHHS, National Natality Survey, 1980.

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*Most of these estimates are based on tabulations of data from the National Center for Health Statistics and from the DHHS's 1984 National Hospital Discharge Survey. Major complications, or potentially serious health problems for the mother or the newborn, are difficulties attendant on pregnancy and childbirth that involve considerably more than the average amount of medical care and, in some cases, hospitalization.

3).* Some 662,000 do not begin care until the second trimester of pregnancy; 207,000 do not start until the third trimester or get no care at all; 393,000 initiate care in the first trimester but make very few prenatal visits.[27] The percentage getting insufficient care is highest among the unmarried (58 percent), teenagers (56 percent), the least-educated (53 percent), blacks (51 percent), Hispanics (47 percent) and the poor† (47 percent).[28] Women make an average of 10.5 prenatal visits,[29] somewhat fewer than the 13 that are recommended by the American College of Obstetricians and Gynecologists.[30] (In 1985, this goal was reached by only 28 percent of expectant mothers.[31]) Although there is no consensus on the optimum number of visits, the importance for the mother's and the infant's health of beginning care in the first trimester of pregnancy is widely recognized,[32] and the U.S. Surgeon General has set a goal of early prenatal care for 90 percent of expectant mothers by 1990.[33] However, since only 76 percent now start prenatal care in the first three months of pregnancy,[34] it is unlikely that this goal will be met.[35] Women who do not obtain sufficient prenatal care are about twice as likely as those who do to have a low-birth-weight baby (10 percent vs. five percent); they also are more likely to have their baby prematurely (13 percent vs. eight percent) and to gain too little weight during pregnancy (28 percent vs. 21 percent).[36]

A woman's birth outcome is most likely to be adverse if she does not see a physician until she is in labor. Thus, 10 percent of women who get at least some prenatal care, compared with 28 percent of those who do not, have premature births; and seven percent of those who obtain care, compared with 27 percent of women who do not, have low-birth-weight babies.[37] The infant mortality rate is 9.7 per 1,000 live births among newborns whose mother began prenatal care in the first trimester; it rises to 12.5 where care was initiated later in pregnancy; and it jumps to 48.7 where the mother obtained no care at all.[38] (Of course, prenatal care is only one of many factors, including poverty, insanitary housing, having an unwanted birth and poor nutrition, that can adversely influence birth outcomes.) Fewer than two percent of mothers receive no prenatal care, but the proportion is much higher among the poor, teenagers, blacks, Hispanics, the poorly educated and, especially, unmarried women, who are about seven times more likely than married women to obtain no care at all.[39]

Table 4. Average total charge per birth by type of delivery and birth outcome, according to component of charge, 1985

Type of delivery and outcome	Total charges	MD and lab fees	Hospital care for newborn	Hospital care for mother
U.S. average	**$4,287**	**$1,251**	**$1,335**	**$1,700**
Vaginal, no complications	2,923	1,187	484	1,252
Cesarean, no complications	4,862	1,489	484	2,889
Cesarean, some complications	6,252	1,489	1,874	2,889
Cesarean, premature birth, with complications	11,805	1,489	7,427	2,889
Cesarean, extremely immature infant	27,050	1,489	22,678	2,889

Sources: For hospital charges: special tabulations from a 1985 survey of U.S. hospitals, conducted by Commission for Professional Hospital Activities; for physician charges: (see reference 76); and for charges for prescriptions and lab tests: V.R. Fuchs and L. Perrault, "Expenditures for Reproductive Care," *Journal of the American Medical Association*, **255**:76, 1986.

Paying for Maternity Care

Having a baby is costly—the average bill is conservatively estimated at about $4,300; it is about $2,900 even if the pregnancy is uncomplicated, the delivery normal and the infant healthy (see Table 4).‡[40] The average is about 40 percent higher in urban areas (where about 75 percent of all U.S. couples live[41]) than in rural areas—$4,670 compared with $3,300. Even this presumably low figure represents more than one-fifth of the typical annual income of a couple in their early 20s ($19,800).[42]

When there are health complications, the bill is much higher. The total charges for a cesarean birth average $4,860 when the newborn has no health problems and they average $6,250 if the baby has complications; they rise to an average of nearly $12,000 if the birth is premature and there are major complications. If the infant is extremely immature, the bill can rise sharply, to an average of $27,000, a figure that is more than one-third higher than the typical young couple's annual income. And the total cost can run into the hundreds of thousands of dollars for premature babies with severe problems.

For a normal delivery and birth outcome, the hospital bill—averaging a little more than $1,700—accounts for about 60 percent of the total charges for maternity care. As problems increase, that proportion rises rapidly—to 95 percent (nearly $26,000) in the case of a cesarean delivery of an extremely immature infant, which involves a relatively long hospitalization for the mother and a very long period of extremely expensive intensive care for the newborn.

In 1985, charges for maternity care in the United States amounted to about $16 billion. Of this, an estimated $4.7 billion was for physician care and laboratory procedures and $11.3 billion was for hospital charges ($6.3 billion for care of the mother, and $5.0 billion for care of the newborn).§

Private Health Insurance

Most couples are at least partially insured for the expenses of having a baby. Seventy-three percent of the 56.2 million U.S. women of reproductive age—41 million—have some form of private health cover-

(Continued on page 195)

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*The findings in this section are based on statistics from the 1980 National Natality Survey, conducted by the National Center for Health Statistics of the DHHS, with estimates adjusted to the number of births in 1986. For the purposes of this publication, insufficient care is made up of two categories: poor care and less-than-adequate care. Care is considered poor if it started in the third trimester or if there had been only one prenatal visit and gestation was 22–29 weeks, if there had been two visits and gestation was 30–31 weeks, three visits and gestation was 32–33 weeks or four visits and gestation was 34 weeks or longer. Care is considered less than adequate if the first visit had not occurred before the second trimester or if there had been only three prenatal visits and gestation was 22–25 weeks, if there had been four visits and gestation was 26–29 weeks, five visits and gestation was 30–31 weeks, six visits and gestation was 32–33 weeks, seven visits and gestation was 34–35 weeks or eight visits and gestation was 36 weeks or longer.

†Married women only.

‡The charges reported here and in Table 4 come from the Commission for Professional Activities' 1985 survey of hospitals, and from the Health Insurance Association of America's 1985–1986 survey (see reference 76).

§Obtained by multiplying average maternity care costs from Table 4 by the number of annual births in the mid-1980s (approximately 3.7 million).

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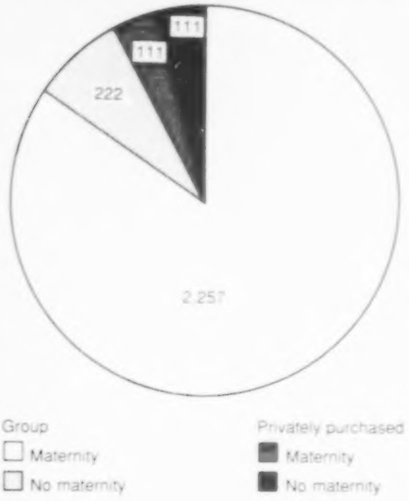
Figure 1. Number of new mothers with private health insurance (in 000s), by type of plan and coverage for maternity care, 1985



Source: Estimates based on comparison of U.S. Bureau of the Census, Current Population Survey, Mar. 1985, and DHHS, National Hospital Discharge Survey, 1984.

(Continued from page 193)

age.*[43] Sixty-seven percent—38 million—are covered by group insurance that is generally obtained by their own, their spouse's or their parent's employer,[44] and six percent (three million) buy their health insurance themselves.[45] The latter option is far more costly to the individual than is group insurance, which is usually subsidized by the employer. (In 1986, the average cost of a privately purchased policy was about $2,400, whereas employees participating in a group plan contributed an average of about $156 for an individual policy and $490 for family coverage.[46])

Fourteen percent of participants in employment-related plans (including a total of 5.3 million women of reproductive age†) are covered through health maintenance organizations (HMOs) or preferred provider organizations (PPOs).[47] HMOs provide most types of health care to participants, who make specified, regular payments. PPOs are medical groups through which companies contract for reduced rates for their employees' health care. In larger firms, the tendency is for employers or unions to self-insure, by organizing their own health-benefit plans for their employees or members. More than four in 10 workers insured through medium-size and large employers are enrolled in such plans.[48] Although these plans are often administered by traditional insurers, they are regarded as benefit packages rather than as insurance plans, and, unlike conventional plans, they do not come under state regulation.

Not all women who have insurance are covered for maternity care. About nine percent of women of reproductive age—some five million women—have private insurance policies that don't cover maternity care. About 64 percent of women who give birth—some 2.4 million—have their maternity care paid for, at least in part, by employment-related or individually purchased private insurance. About 333,000 have private policies that pay nothing for their maternity care, forcing them to rely on their own funds or, if they qualify, to apply for Medicaid (see Figure 1).‡[49]

Many gaps in coverage result from loopholes in the 1978 Pregnancy Discrimination Act. Congress passed this law to require employers to offer employees and their spouses policies that cover maternity care in the same manner as they cover other medical care. However, the law has three major loopholes. The first and most obvious is that it applies only to employment-related group insurance; individually purchased policies need not cover maternity care. The second problem is that the law applies only to the employee and spouse. As a result, 35 percent of typical family policies do not cover nonspouse dependents—i.e., teenage daughters—for maternity care. (There are 2.7 million female nonspouse dependents who are not covered by private insurance.[50]) Sixty-nine percent of policies do not cover the babies of nonspouse dependents, whether or not the teenager is covered; only 25 percent provide coverage for both the teenager *and* her infant.[51] The failure to cover teenagers and their babies poses a serious problem, since very young women are at especially high risk of having an adverse pregnancy outcome if they do not get early and appropriate prenatal care. (Eight states do extend to dependent children the same federal protection that is given to the spouses of insured persons.§ However, state laws do not affect self-insured plans.) Finally, the law does not protect people insured through firms with 15 or fewer employees.

Waiting Periods

The imposition of waiting periods before coverage begins or before preexisting health conditions are covered may prevent some insured women from getting timely prenatal care. Waiting periods affect new participants in health insurance plans; although relatively few women start a new job while they are pregnant, a husband may well change employment during the course of his wife's pregnancy. In addition, changing from individual to family coverage after a pregnancy has begun may entail a waiting period that will delay coverage.

Fifty-eight percent of full-time employees participating in employment-related health insurance programs—including at least 20 million women of reproductive age**—belong to plans that require a waiting period; more than half of these are in plans that impose a waiting period of three months or longer (see Table 5, page 196).[52] Just over three in 10 participants belong to

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*In order to analyze the extent and nature of employment-related and other private health insurance coverage, The Alan Guttmacher Institute (AGI) made special tabulations of data from the U.S. Bureau of the Census's March 1985 Current Population Survey and from the 1984 Employee Benefits Survey, conducted by the U.S. Bureau of Labor Statistics, which provides representative data for 21 million full-time employees in private firms, principally those with 100 or more employees. The AGI supplemented this information with a survey in the winter and spring of 1987 of the 100 leading commercial insurance companies and of all 78 Blue Cross/Blue Shield plans. Seventy-three percent of the surveyed insurers responded, including 82 percent of the Blue Cross/Blue Shield plans and 66 percent of the commercial insurers. The survey results probably represent the most generous types of health insurance policies. The benefits described in this section, therefore, are probably more liberal than are the average.

†Estimate based on a survey of medium and large size firms.

‡The estimate of five million women aged 15–44 who have private health insurance that does not include coverage for maternity care was obtained by comparing health insurance coverage for all women aged 15–44 in 1985 with the expected source of payment for delivery that was reported by women who gave birth in 1985.

The estimate of 333,000 women giving birth each year who have private insurance that does not cover maternity care was obtained by applying the proportion of women aged 15–44 with private health insurance but no maternity coverage to the number of women giving birth in 1985.

§The states are Illinois, Maine, Maryland, Massachusetts, Minnesota, New York, Ohio and Wisconsin. In order to determine how state laws and regulations affect insurance for maternity care, the AGI compiled information from a wide variety of sources. These include, among others, Blue Cross/Blue Shield, the American College of Obstetricians and Gynecologists, the American College of Nurse Midwives and the Intergovernmental Health Policy Project of George Washington University. The information was condensed into summary sheets for each state and the District of Columbia. These sheets were sent for verification to each state attorney general. Forty-five states and the District of Columbia responded.

**This is a minimum estimate because the medium and large size firms upon which the estimate is based have better coverage than the small firms.

Table 5. Percentage distribution of participants in employment-related health insurance plans by length of waiting period before coverage begins after joining firm, for all participants and for those witn preexisting health conditions; and percentage fully covered for hospital and physician fees for maternity care; 1984

Waiting period (in mos.) and coverage	%
All participants	
0	42
1–2	27
3	19
4–6	11
7–12	1
Participants with preexisting health conditions	
0	69
2–3	1
4–6	11
7–9	1
≥10	18
Total	100
Fully covered	
Hospital, room and board	8
Hospital, other	7
MD fee	26
<250 employees	19
250–499 employees	24
500–999 employees	25
≥1,000 employees	29

Sources: AGI tabulations frc U.S. Bureau of Labor Statistics, 1984 Employee Benefits Survey, for medium and large size firms; see reference 9, Tables 77–81.

plans that mandate waiting periods for individuals who have preexisting medical conditions, including pregnancy; 18 percent belong to plans that impose waiting periods of 10 months or more, thus effectively precluding *any* reimbursement for care during pregnancy.[53]

Maternity care can be expensive for young families—even those covered by employment-related plans—because insurance seldom covers the full bill for health care, and it often fails to cover services required by expectant mothers and newborns.

The insured employee is usually required to pay a certain deductible amount before coverage takes effect; participants also generally have to pay a percentage of most medical bills (copayments) even after the deductible has been met; and most policies set a maximum reimbursement for each type of service.

Only 7–8 percent of participants in group plans are fully covered for hospital room and board and other charges, such as anesthesia. Only 26 percent are fully insured for physician charges for maternity care. (Among participants in HMOs, however, 92 percent are fully covered for hospital room and board, and 89 percent for the physician's charges.) Coverage for physician fees for maternity care rises with the size of the firm. Thus, only 19 percent of people insured through companies that employ fewer than 250 workers* have full coverage for their medical bills, compared with 29 percent of those insured through firms with 1,000 or more employees.[54]

Fourteen percent of insurers do not cover Rh immune globulin injections. Half do not cover routine physician care of newborns in the hospital. Eighteen percent of insurers limit the number of hospital days allowed for the newborn (typically to three days).[55] Besides costs that are not reimbursed at all, women must in the course of their pregnancies often make payments to the physician for which they are not reimbursed until after they have given birth. This is because the insurer generally makes a single payment to the physician that includes prenatal and postnatal care and delivery. Seventy-five percent of all insurers do not make that payment until after the delivery, and nine percent do not make it until after the completion of postpartum care.[56] More and more physicians appear to be requiring payment for care at the time it is administered, which places the burden of delayed reimbursement on the patient.

Table 6. Percentage distribution of participants in employment-related health insurance plans, by proportion of the premium cost that must be paid by the employee, according to type of coverage and number of employees in firm, 1984

Type of coverage and number of employees	% of premium cost that must be paid by employee					
	0	1–24	25–49	50–74	75–100	Total
Individual						
Total	62	22	13	3	0	100
≤250 employees	61	20	16	4	0	100
≥1,000 employees	70	19	9	1	0	100
Family						
Total	41	28	18	9	4	100
≤250 employees	36	21	20	19	4	100
≥1,000 employees	51	27	15	5	2	100

Sources: AGI tabulations from U.S. Bureau of Labor Statistics, 1984 Employee Benefits Survey, for medium and large size firms; see reference 9, Tables 87 and 89.

In addition to paying deductibles and copayments, a substantial and increasing proportion of employees must pay for at least part of their health insurance coverage. Overall, 38 percent of participants in group plans contributed in 1984 to the cost of their own coverage, and 59 percent had to pay for part of family coverage (see Table 6).[57] In plans that require employees to contribute, 43 percent of participants must pay for one-quarter or more of the premium for individual coverage; for a family policy, 52 percent must pay that proportion; and 21 percent must pay for half or more.

Employees of small firms not only are less likely than those in large companies to have any health insurance; they also pay more to participate in a group plan, especially for family coverage. Participants in Blue Cross/Blue Shield plans are least likely to be required to contribute to the costs of insurance coverage, and participants in HMOs are most likely to have to do so.[58]

Government Programs—1. CHAMPUS

The Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) is the health program for dependents of those on active duty and for those retired from the U.S. uniformed services and their dependents. Although CHAMPUS is publicly funded, it cannot be considered a public program in the same sense as others discussed in this section, since it is an employment-related fringe benefit and, as such, more closely resembles private health insurance programs. Health care services offered through CHAMPUS are often provided in military hospitals.[59] Some 1.3 million women aged 15–44 are covered by CHAMPUS or—a very small proportion—by Medicare; each year more than 110,000 births are paid for by these programs.

Women of reproductive age whose health care is covered by CHAMPUS have characteristics similar to those of the general population, except that they are more likely than all women in that age-group to be married and to have marginal incomes (100–199 percent of poverty) and slightly more likely to be under age 25 and to have fewer than 12 years of education. Compared with women whose health care is subsidized by publicly funded programs, however, a larger proportion are white, married, childless and well educated[60] (see Table 7, column 2).

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*Survey does not include most firms with fewer than 100 employees.

Table 7. Percentage distribution of all women aged 15–44, and of women who are covered by CHAMPUS or Medicaid or who have no health insurance, by selected characteristics, 1985

Characteristic	All women	Insurance coverage		
	(1)	CHAMPUS* (2)	Medicaid (3)	None (4)
N (in 000s)	56,152	1,317	4,184	9,540
Race				
White	76	73	46	68
Black	13	14	37	16
Hispanic	8	7	14	12
Other	3	7	3	4
Marital status				
Married	52	63	21	35
Unmarried	48	37	79	65
Age-group				
15–24	35	40	41	51
25–49	65	60	59	49
Poverty status				
<100%	16	19	78	34
100–199%	19	33	17	29
≥200%	65	48	5	37
Years of education				
<12	20	24	45	29
12	39	40	39	38
>12	41	36	16	34
Employment status				
Unemployed	16	61	61	24
Part-time/year	28	31	31	42
Full-time	56	8	8	34
Parity				
No children	24	21	10	28
≥1 child	56	79	90	72
Total	100	100	100	100

*Includes a small number on Medicare.

Note: Medicaid column and CHAMPUS totals exclude women who also have private coverage.

Sources: AGI tabulations from U.S. Bureau of the Census, Current Population Survey, Mar. 1985; see reference 9, Table 127.

2. Medicaid

Medicaid—the federal-state program designed to finance health care for the poorest of the poor, primarily welfare recipients—is the major source of public funding for maternity care.* Although the program is financed jointly by the federal government and the states, it is administered by the states. The extent of coverage, eligibility criteria, services that are covered and reimbursement levels vary widely, therefore, from state to state.

Just over four million women of reproductive age—the vast majority of them young, unmarried and unemployed—are covered by Medicaid† (see Table 7, column 3). Almost all have children or are pregnant (generally a requirement for qualification for Medicaid for women in this age-group). In recent years, Congress has given special priority to the needs of poor, pregnant women by requiring coverage for many poor women who would not normally be covered under their states' Medicaid programs.

Medicaid covers medical care for 4.2 million women—seven percent of all women of reproductive age. In 1985, some 630,000 deliveries—17 percent of all births—were subsidized by Medicaid, at a total cost to the federal and state governments of about $1.8 billion. Thus, Medicaid contributes only 11 percent of the $16 billion charged for maternity care nationwide,‡ even though women on Medicaid are likely to have more health problems during pregnancy than the average woman. The proportion of births covered by Medicaid varies widely by state; in 1985, it ranged from three percent in Alaska to 25 percent in Michigan.

Many poor women do not qualify for Medicaid. In 1986, the income ceiling for eligibility in virtually all states was well below the federal poverty level of $9,120 for a family of three in that year. The ceiling averaged about $5,200 for all states—56 percent of the poverty standard—and ranged from $1,416 in Alabama (16 percent of poverty) to $9,900 in California (109 percent). Twenty-one states set a limit that was 25–49 percent of the federal poverty standard; 20 set it at 50–74 percent of poverty; and eight set it at 75–99 percent. Only Alabama had a ceiling below 25 percent of poverty, and only California set a limit that was above the federal poverty standard (see Table 8, column 1, page 198).

One of the thorniest problems in Medicaid eligibility for maternity care is the question of coverage of teenagers who live with their parents or parent. All but two states (Illinois and New York) consider the parents' income rather than the pregnant teenager's in determining her eligibility for benefits. If the parents are not already eligible for Medicaid, the young pregnant woman may have to leave her parents' home and set up her own household in order to qualify for benefits. In five states (Alabama, Arizona, California, Maryland and New Hampshire), adolescents who are dependents living in families that receive Medicaid are given their own Medicaid card.)

Because Medicaid is generally administered by the welfare bureaucracy, it is not surprising that many states concentrate more on keeping ineligible applicants out of the system than on reaching out to make sure that all those who qualify are included. Efforts to inform pregnant women about the availability of Medicaid benefits and to help them through the application process are sparse and uneven. More than 80 percent of states reporting in 1987 do some kind of outreach (Table 8, column 2). The most common activity is training staff in human service agencies, such as welfare and health departments, about Medicaid eligibility and benefits (75 percent of reporting states do so). Only a little over half indicate that they distribute informational materials through human service agencies to tell clients about the availability of ser-

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*In November 1985 and in October 1986, the AGI surveyed the heads of the state Medicaid agencies to gather information about maternity services financed through this federal-state mechanism. All states responded except Alaska, Idaho and Wyoming. Most of the data in this section are drawn from the results of that survey.

†There are an additional 700,000 women who have Medicaid and some private coverage. These were included under those covered by private insurance.

‡The estimate of total charges in 1985 is obtained by multiplying the average charge per woman giving birth by the number of births (see pp. 191 and 193).

Table 8. State income ceiling (as percentage of poverty level) for Medicaid eligibility, 1986; number of states that perform any outreach activities; number of weeks to process Medicaid applications; and Medicaid reimbursement paid to physicians for prenatal and postnatal care and delivery, by type of delivery; 1986

State	Income ceiling (% of poverty) (1)	Do any outreach (no. of states) (2)	Weeks to process application (3)	MD reimbursement	
				Vaginal delivery (4)	Cesarean delivery (5)
U.S. total	**56**	**39**	**4***	**$554**	**$767**
Ala.	16	yes	2	500	650
Alaska	79	u	u	u	u
Ariz.	39	yes	6	na	na
Ark.	34	yes	6	546	765
Calif.	109	yes	6	740	1,303
Colo.	55	yes	6	392	574
Conn.	80	no	6	861	861
Del.	41	yes	1	(433)	(586)
D.C.	64	yes	4	(898)	(1,073)
Fla.	47	yes	4	310	447
Ga.	45	yes	6	800	1,075
Hawaii	54	no	4.5	na	na
Idaho	40	u	u	u	u
Ill.	60	yes	4	447	522
Ind.	34	no	4.5	533	1,073
Iowa	67	yes	3	549	741
Kan.	61	yes	3.5	700	755
Ky.	35	yes	3	u	u
La.	34	yes	6.5	516	732
Maine	71	yes	2	500	500
Md.	54	yes	5	(999)	(1,052)
Mass.	87	yes	2.5	1,027	1,027
Mich.	71	yes	2.5	(504)	(636)
Minn.	70	yes	u	455	832
Miss.	48	yes	6	(457)	(615)
Mo.	37	no	u	425	u
Mont.	53	yes	4	577	650
Nebr.	59	yes	7	598	818
Nev.	38	no	3.5	709	1,115
N.H.	61	no	3	216	325
N.J.	71	yes	4	236	369
N.M.	34	yes	4	355	625
N.Y.	81	yes	4	550	575
N.C.	46	yes	7	409	650
N.Dak.	57	yes	u	(326)	(588)
Ohio	41	yes	1	(546)	(596)
Okla.	55	yes	6	725	850
Oreg.	70	yes	3	502	700
Pa.	56	yes	1.5	(426)	(572)
R.I.	83	yes	1	350	407
S.C.	50	yes	6	455	544
S.Dak.	48	no	3	325	550
Tenn.	45	yes	4	725	925
Tex.	35	no	4	850	1,200
Utah	91	yes	4	576	714
Vt.	81	yes	3	350	416
Va.	47	yes	6	625	820
Wash.	73	yes	4	600	651
W. Va.	38	yes	4	255	396
Wis.	84	no	3	590	763
Wyo.	47	u	u	u	u

*U.S. average.

Notes: In this table and Table 10, numbers in parentheses are estimates, and na = not applicable. In this table and Tables 10 and 12, u = unavailable or no response to questions or survey.

Sources: See reference 67; and see reference 9, Tables 59, 60 and 63.

vices, and a much smaller percentage still—about one in five reporting states—make use of TV or radio advertising. Only about one-eighth of all reporting states conduct all three types of outreach activities. Most Medicaid literature does not specifically indicate that pregnancy is a ground for eligibility. Even when it does, the information is sometimes out of date, and may discourage eligible women from applying.[69]

The process of applying for Medicaid is complicated and may greatly delay the moment when women can begin their prenatal care. Eight percent of pregnant women covered by Medicaid don't start prenatal care until the third trimester; three percent get no care at all (compared to three percent and two percent, respectively, among all women who give birth).[70] Typically, pregnant women covered by Medicaid make 8.7 prenatal care visits, whereas the average expectant mother makes 10.5 visits.[71]

Once a woman finds out that she is pregnant and decides to apply for a Medicaid card, she must fill out an application form. In most states, this form is long and complex and requires extensive documentation. The filing of an application usually involves several visits to the welfare office. Forms average 14 pages in length and can run to as many as 40 pages. Only 11 states (Arizona, Arkansas, Colorado, Florida, Georgia, Kentucky, Louisiana, New Jersey, New York, North Carolina and South Carolina) allow Medicaid workers to go to clinics to help applicants fill out these forms. Only three of 45 states for which there are data (Delaware, Ohio and Rhode Island) indicate that they process Medicaid applications in a week or less. In most states, a pregnant woman, like all other Medicaid applicants, must wait a month or more to receive the card that entitles her to subsidized services (see Table 8, column 3). Only three of 48 reporting states expedite the review process for a pregnant woman (Alabama, California, and Virginia); the same number permit health care providers to give a pregnant woman a temporary Medicaid number (Illinois, Maine and Massachusetts).* All in all, only nine states—20 percent—take any of these steps to reduce delays in coverage for pregnant women.[72]

Under Medicaid, all states reimburse

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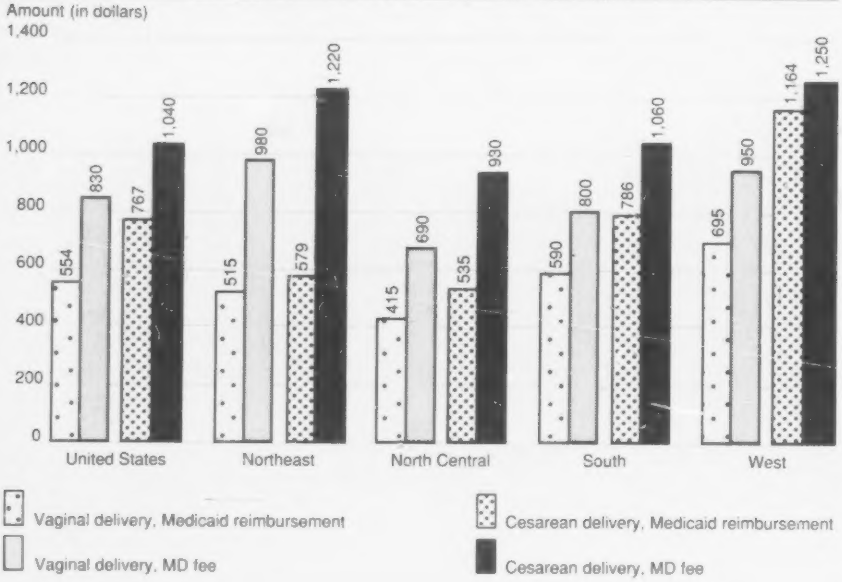
*An additional seven states have taken advantage of a recent revision in the Medicaid law allowing local health care providers to serve pregnant women thought to be eligible for Medicaid and, pending determination of their eligibility, to claim reimbursement (see reference 108).

Figure 2. Average amount of Medicaid reimbursement paid to physician and average physican fee for maternity care, by type of delivery, according to region, 1986



Sources: **Physician's fee**: See reference 76. **Medicaid reimbursements:** See reference 10, Table 63, and reference 65, Table 1 (for data weighted for the number of Medicaid births, by state).

providers for one or more of eight specialized services or diagnostic tests performed during pregnancy.* Thirty-six—or 75 percent of states for which there are data—cover all eight. In some states, however, important services are not covered. Six states, for example, will not pay for an Rh immune globulin injection. Even within states, conditions for payment may vary. Thus, providers may be denied reimbursement for services they have already given, or patients may be denied services they need.[73] Despite these problems, once a pregnant woman surmounts the many obstacles required for certification, in most states Medicaid does cover most necessary services.

Only 35 percent of women whose delivery is paid for by Medicaid go to a private physician for prenatal care, compared with 73 percent of all women and 83 percent of women who are not poor.[74] This difference is not surprising, since 44 percent of doctors providing obstetric services will not accept Medicaid payments for delivery.[75] Doctors are reluctant to accept Medicaid patients for a number of reasons. Perhaps one of the most important of these is that reimbursement rates—although they have risen substantially in recent years—are still below physicians' usual charges. In some states, they are strikingly lower.

In 1986, physician fees averaged $830 for a vaginal delivery and $1,040 for a cesarean section (see Figure 2).[76] The maximum Medicaid reimbursement for a normal vaginal delivery averaged $554, but it ranged from as little as $216 in New Hampshire to $1,027 in Massachusetts. Florida limits the *total* payment for prenatal care alone to $62.50—less than one-tenth the average physicians' charge for prenatal care. The average nationwide Medicaid reimbursement for a cesarean section is $767—ranging from $325 in New Hampshire to $1,303 in California (see Table 8, columns 4 and 5).[77] As Figure 2 shows, the discrepancies between the Medicaid reimbursement and the average physician fee are greatest in the northeastern states, and smallest in the West.

Total Medicaid payments for maternity care in 1985, including those for the physician and hospital (but excluding neonatal intensive care), averaged about $2,200; but these payments varied widely by state, from $1,310 in Louisiana to $3,520 in Tennessee,[78] and are about two-thirds of the comparable national average charge of $3,440 for such care.†

Factors other than low reimbursements make physicians reluctant to accept Medicaid patients: States sometimes stop making payments altogether if they run out of money before the end of the fiscal year; claims are often returned or rejected; it is the responsibility of health care providers to obtain, complete and file the Medicaid claim forms, which adds significantly to their paperwork burden; payment is often delayed until well after the delivery, forcing providers to wait many months for their money; and many providers fear malpractice suits when dealing with Medicaid patients, who tend to be at higher than usual risk of adverse outcomes.[79]

Federally Financed Clinics

Poor women are disproportionately dependent on clinics—such as those operated by health departments, hospital outpatient facilities, and community and migrant health centers—for their prenatal care. This is especially true of women on Medicaid: Sixty percent of women whose delivery is subsidized by Medicaid, and 39 percent of poor women (that is, women with family incomes under 100 percent of the federal poverty standard), obtain their prenatal care at a clinic, compared with just 21 percent of all women.[80]

Two major public programs support clinics that provide maternity care primarily to poor women, some of whom have Medicaid coverage, but most of whom do not. One is the state-administered Maternal and Child Health (MCH) program, financed jointly by the federal government and the states, to provide health care to poor women and children.‡[81] The other is a federal program that supports more than 560 community and migrant health centers.§ These two programs support a network of clinics that provide care in communities where it is not otherwise readily available. There are community and migrant health centers or MCH providers in every state except Wyoming, but the clinics are not necessarily available in all areas of need.

In 1986, an estimated 660,000 patients obtained prenatal care through these two

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*Rh immune globulin injection, ultrasound, fetal oxytocin stress test, fetal nonstress test, amniocentesis, alpha fetoprotein screening, cytogenetic study of amniotic fluid and L/S ratio analysis.

†The $3,440 average charge for maternity care (for cesarean and normal deliveries) for all mothers with normal newborns is derived by adding components from Table 4 ($1,251, $484 and $1,700).

‡In April 1987, the AGI sent a questionnaire about maternity care financed with MCH funds to the director of the MCH division of the health agency for each state and the District of Columbia; all but three states—Connecticut, Massachusetts and Nevada—and the District of Columbia responded.

§In March 1987, the AGI sent a questionnaire to the executive director of each community and migrant health center. Although only 36 percent of the agencies responded, these are a representative sample, according to region, urban-rural location and agency type.

Table 9. Percentage distribution of prenatal care patients served in MCH-supported clinics and in community or migrant health centers (CMHCs), by type of insurance coverage, poverty status and age-group, 1986

Characteristic	Total (N= 659,600)	MCH clinics (N= 446,600)	CMHCs (N= 213,000)
Insurance coverage			
Private	11	9	14
Medicaid	32	27	44
None	57	64	42
Poverty status			
<100%	64	64	64
100–200%	31	34	24
>200%	5	2	12
Age-group			
15–19	32	34	27
20–34	63	62	65
≥35	5	4	8
Total	100	100	100

programs—213,000 in community or migrant health centers and 447,000 in MCH clinics located mainly in state and county or city health departments.*[82] (Other publicly subsidized programs also provide some prenatal care. These include hospital clinics, university health centers and Indian Health Service clinics.)

About six in 10 states have set special Medicaid reimbursement rates for some types of clinics that reflect their provision of patient education, outreach and treatment to a high-risk population. However, only three in 10 states apply these rates to health departments, community health centers *and* MCH clinics.[83]

As may be seen in Table 9, 57 percent of the prenatal care patients served in these two programs, or about 375,000 women, have neither public nor private health insurance. Another 32 percent are covered by Medicaid, and 11 percent have some private insurance, although they may not be covered for maternity care. Sixty-four percent of patients in these programs have family incomes that are below the federal poverty level; all but five percent have incomes below 200 percent of the poverty standard. In addition, a large proportion of patients are young. These are groups that are at high risk of pregnancy complications; 32 percent are teenagers, more than twice the national average. Prenatal patients enrolled in community and migrant health centers are more likely to be covered by Medicaid than are those in MCH-supported clinics (44 percent vs. 27 percent) and less likely to be uninsured (42 percent vs. 64 percent); they are also more likely to have family incomes that place them above 200 percent of the federal poverty standard (12 percent vs. two percent) and slightly less likely to be teenagers (27 percent vs. 34 percent).[84]

As may be seen in Table 10, the proportion of prenatal patients in MCH-supported clinics who have family incomes below the federal poverty standard ranges from 100 percent in Arizona, Louisiana and South Dakota to zero percent in Pennsylvania.The proportion uninsured is as low as five percent in Pennsylvania, but reaches 100 percent in Arizona, Maine, New York, Oklahoma and West Virginia; and the proportion who are teenagers ranges from 17 percent in New Mexico to 48 percent in Utah.

Nearly one in five of the 3.7 million women who give birth each year obtain prenatal care at MCH clinics or at community or migrant health centers. This proportion is much higher, however, for the subgroups at highest risk of pregnancy problems. Thus, four out of 10 of the half-million teenagers and of the one million poor women who give birth each year obtain their prenatal care at one of these types of clinics, as do one-third of the 630,000 women whose delivery is paid for by Medicaid and two-thirds of the 555,000 women who arrive for delivery at the hospital with no insurance.†

Although MCH programs and community and migrant health centers provide prenatal care for a substantial number of poor women, the connection between these programs and the hospitals where the delivery takes place is weak.[86] Only 16 states require MCH-supported clinics to make arrangements for hospital delivery for their patients, such as transfer of medical records. Sixteen states will not allow MCH funds to be used to pay the physician's fee for delivery.[87] Thirty-six percent of community and migrant health centers do not schedule or arrange for hospital admission for their prenatal patients; of these, 17 percent do not transfer the woman's records to the hospital where she is to deliver. However, medical staff from the centers attend half of the deliveries of their patients, and the centers pay for an outside physician to attend an additional 19 percent.[88]

Among the 660,000 women who obtained prenatal care through MCH-supported clinics or community or migrant health center programs in 1986, only a tiny proportion were helped by these programs to pay their hospital bills. Only six percent of women who got prenatal care in MCH-supported clinics, and just 3.5 percent of those who got care in community or migrant health centers, obtained such assistance; and there is almost certainly some duplication in these numbers. Moreover, even in the rare circumstances under which these programs do contribute, the payments are usually quite modest.[89]

MCH programs in four states (Alaska, Montana, North Dakota and Wyoming) do not provide prenatal care. In two states (Louisiana and Virginia), the programs will not serve women at high risk of adverse birth outcomes; in four states (Hawaii, Idaho, Minnesota and South Dakota), they serve only high-risk women. In addition, 15 percent of all community and migrant health centers do not offer prenatal care, and 34 percent that provide prenatal care will not serve patients at high risk of adverse outcomes, possibly because of the difficulty and high cost of obtaining malpractice insurance.[90]

Eligibility for free or subsidized care under the MCH program is generally based on family income, and the income limits vary considerably among states. Of the 39 states for which there are data, the largest number (21) set the maximum at 150–199 percent of the federal poverty standard. Nine states set it at 250 percent or higher, or set no income restrictions; six set it at 200–249 percent of poverty; one uses 146 percent as the cutoff; and two adhere to the 100 percent level[91] (see Table 10, column 1).

Women Who Have No Insurance

Seventeen percent of women of reproductive age—about 9.5 million women—have no public or private health insurance. The proportion among poor women is more than twice as high (35 percent). Women who are Hispanic, have less than 12 years of education, work in service occupations or are in their early 20s are 50 percent more likely than the average to have no health insurance. Women who are black, unmarried, in their teens or who are unemployed are among other groups in which relatively high proportions have no coverage. The reason teenagers and women in their early 20s are more likely than average to be without insurance is partly that they are more often childless than older women—and, therefore, are less likely to be eligible for Medicaid coverage—and partly that young

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*There may be some, but we believe little, overlap of patients served through these two programs.

†Preliminary count of births in 1986 (3,731,000) obtained from the NCHS, personal communication, 1987 (see reference 12). Percentage distributions for age were obtained from 1985 vital statistics; for poverty, from the March 1985 Current Population Survey; and for insurance, from the 1984 National Hospital Discharge Survey. The distributions were applied to the number of births in 1986.

Table 10. State income ceiling (as percentage of poverty level) for eligibility for free or subsidized prenatal care under the MCH program; and percentage distribution of prenatal care patients in MCH clinics, by poverty status, insurance coverage and age-group; 1986

State	Income ceiling (% of poverty)	Poverty status			Insurance coverage			Age-group			Total
		<100%	100–200%	>200%	Medic-aid	Private	None	15–19	20–34	35–44	
U.S.	**na**	**64**	**34**	**2**	**27**	**9**	**64**	**34**	**62**	**4**	**100**
Ala.	153	75	25	0	14	0	86	38	60	2	100
Alaska	*	*	*	*	*	*	*	*	*	*	100
Ariz.	100	100	0	0	0	0	100	31	65	4	100
Ark.	u	82	18	0	5	95		(31)	(66)	3	100
Calif.	200	18	82	0	27	5	68	(25§)	(70)	(5)	100
Colo.	150	(86)	(14)	(0)	5	0	95	u	u	u	100
Conn.	u	u	u	u	u	u	u	u	u	u	100
Del.	†	(55)	(45)	(0)	u	u	u	u	u	u	100
D.C.	u	u	u	u	u	u	u	u	u	u	100
Fla.	150	u	u	u	19	0	81	u	u	u	100
Ga.	150	76	24	0	16	66	18	37§	61	2	100
Hawaii	182	u	u	u	70	18	12	u	u	u	100
Idaho	150	(90)	(10)	(0)	(10)	(5)	(85)	19	72	9	100
Ill.	185	u	u	u	66	0	34	u	u	u	100
Ind.	146	u	u	u	7	93		41	59		100
Iowa	250	u	u	u	36	8	56	u	u	u	100
Kans.	175	(15)	(60)	(25)	u	u	u	47§	53		100
Ky.	185	91	9	0	35	65		u	u	u	100
La.	‡	(100)	0	0	41	0	59	29**	67**	2**	100
Maine	172	(9)	(88)	(3)	0	0	100	u	u	u	100
Md.	224	u	u	u	30	0	70	u	u	u	100
Mass.	u	u	u	u	u	u	u	u	u	u	100
Mich.	180	u	u	0	25	68	7	u	u	u	100
Minn.	200	u	u	0	u	u	u	u	u	u	100
Miss.	200	(62)	(34)	(4)	u	u	u	(31)	(66)	(3)	100
Mo.	u	u	u	u	u	u	u	u	u	u	100
Mont.	*	*	*	*	*	*	*	*	*	*	100
Nebr.	100	u	u	u	55	45		u	u	u	100
Nev.	u	u	u	u	u	u	u	u	u	u	100
N.H.	153	u	u	u	20	6	74	38	57	5	100
N.J.	250	u	u	u	u	u	u	u	u	u	100
N.M.	197	u	10	u	10	0	90	17	83		100
N.Y.	185	(25)	(75)	(0)	0	0	100	u	u	u	100
N.C.	150	70	(30)	(0)	19	0	81	38	60	2	100
N.Dak.	*	*	*	*	*	*	*	*	*	*	100
Ohio	255	u	u	u	(50)	(10)	(40)	u	u	u	100
Okla.	‡	73	27	0	0	0	100	u	u	u	100
Oreg.	250	75	16	9	36	6	58	32	64	4	100
Pa.	185	0	100	0	85	10	5	u	u	u	100
R.I.	296	65	25	10	38	21	41	u	u	u	100
S.C.	185	71	27	2	35	65		u	u	u	100
S.Dak.	150	100	0	0	u	u	u	38	54	8	100
Tenn.	‡	78	22		u	u	u	u	u	u	100
Tex.	200	u	u	u	u	u	u	97		3	100
Utah	225	40	50	10	45	2	53	48	41	11	100
Vt.	u	u	u	u	u	u	u	u	u	u	100
Va.	185	u	u	u	(10)	(0)	(90)	u	u	u	100
Wash.	185	58	42	0	(15)	0	(85)	25	72	3	100
W.Va.	150	86	14	0	0	0	100	40§	58	2	100
Wis.	(250)	u	u	u	(75)	(15)	(10)	u	u	u	100
Wyo.	*	*	*	*	*	*	*	*	*	*	100

*No prenatal care. †Varies throughout the state. ‡No restriction. §All <20.

**Percentages do not add to 100; this is how the state reported the data. Source: See reference 9, Tables 66 and 67.

people tend to work in beginning or low-paying jobs that do not offer insurance. The percentage without coverage is highest among women who are young *and* have family incomes below the poverty level—41 percent for poor women aged 20–24 and 40 percent for those aged 15–19.[92]

Because of the way in which private insurance is tied in to the workplace, it is not surprising that a larger-than-average proportion of women who are unemployed or employed part-time are without any insurance. In addition, women employed in certain occupations—for example, in the farming or service sector (or married women whose husbands are employed in those occupations)—are even less likely than the unemployed to be covered by insurance. This is probably because their employers do not provide a health insurance plan and their income is too high to make them eligi-

Table 11. Percentage of women aged 15–44 with no insurance coverage for maternity care, and percentage with no coverage at delivery, by selected characteristics, 1985

Characteristic	All women	Women at delivery
Total	**26**	**15**
Age-group		
15–19	59	26
20–24	33	19
25–29	15	11
30–34	9	9
35–39	15	11
40–44	23	15
Marital status		
Married	18	15
Never married	63	19
Widowed, divorced, separated	55	15
Race		
White	23	15
Black	37	14
Region		
West	32	21
South	29	18
Northeast	27	12
North Central	21	12

Sources: AGI tabulations from U.S. Bureau of the Census, Current Population Survey, 1985, National Hospital Discharge Survey for all women with no maternity care coverage. For all women with no maternity care coverage, AGI tabulations from comparison of U.S. Bureau of the Census, Current Population Survey, Mar. 1985, and DHHS, National Hospital Discharge Survey, 1984; for women with coverage at time of delivery, DHHS National Hospital Discharge Survey, 1984.

ble for government-subsidized programs.

Recent trends in patterns of employment make it likely that increasing proportions of women of childbearing age will be without health insurance. Since 1970, the proportion employed in industries with high levels of insurance coverage, most notably manufacturing and transportation, has been declining, while the proportion employed in occupations least likely to have health insurance, in particular the service and retail sales sector, has been rising. In addition, the proportion of women in their early 20s working part-time is on the increase.[93]

Table 12. Percentage distribution of all women aged 15–44 and of new mothers, by type of insurance coverage, 1985

Type of coverage	All women (N= 56,200,000)	Mothers (N= 3,700,000)
With maternity	74	85
Private		
Group	61	61
Individual	3	3
Public		
Medicaid	7	17
CHAMPUS/other	3	4
No maternity	26	15
Private		
Group	6	u
Individual	3	u
No insurance	17	u
Total	100	100

Sources: AGI tabulations from U.S. Bureau of the Census, Current Population Survey, Mar. 1985; and DHHS, National Hospital Discharge Survey, 1984.

Twenty-six percent of women of reproductive age—14.6 million of them—have no insurance to cover maternity care (see Table 11). Seventeen percent have no insurance at all, and nine percent have private health insurance that does not cover maternity care.[94] Sixty-three percent of never-married women, 59 percent of teenagers, 55 percent of those who are widowed, separated or divorced and 33 percent of those in their early 20s have no health insurance that covers maternity care. The percentage is higher among nonwhites than whites (37 percent vs. 23 percent) and among women from the West than from other regions of the country.[95]

Many poor and near-poor women are without *any* health insurance coverage: 3.2 million women of reproductive age with incomes below the poverty line and another 2.8 million with only marginal incomes ($9,300 and $13,900, respectively, for a family of three) have no health insurance coverage.[96]

By the time they actually give birth, the proportion uninsured is reduced from 26 percent to 15 percent. That is because many poor women become eligible for Medicaid only after a pregnancy is diagnosed. However, even at the time of delivery, some 555,000 women each year are not covered by any kind of health insurance.[97] By the time of delivery, Medicaid coverage has eliminated the gap between whites and blacks of reproductive age who have no coverage for maternity care. Nevertheless, teenage mothers and those in their early 20s remain much more likely than older mothers to be without insurance for delivery. Never-married mothers and those from the West and the South also remain relatively more likely to be uninsured.

Among the 15 percent of mothers who arrive at the hospital for delivery with no insurance coverage, 10 percent have had no prenatal care or they obtained it only in the third trimester. The proportion having obtained late care is twice as high as the national average, and the proportion who have gotten no care is about four times the national average.[98]

Table 12 summarizes the health insurance coverage for maternity care of all 56.2 million U.S. women of reproductive age and of the 3.7 million who give birth annually. The biggest difference in the two columns of figures is that whereas only 10 percent of all women of reproductive age are covered by government programs, that number rises to 21 percent of those giving birth. As a result, 15 percent of women giving birth have no coverage for the delivery, compared to 26 percent of all women aged 15–44. As noted earlier, although many women become eligible for Medicaid once their pregnancy is diagnosed, eligibility is often established too late for them to obtain timely prenatal care.

Uncompensated Care

Hospital care not paid for by insurance or the patient—commonly called uncompensated care—amounted to $7.4 billion in 1985 for all patients. Of this total, $1.1 billion was covered by state and local tax appropriations, $1.7 billion was allocated by hospital budgets for charity care, and $4.6 billion represented uncollectable bills.[99] The amount of uncompensated care continues to rise, and must be absorbed by hospitals, taxpayers or higher health insurance premiums for the insured and their employers.

Some 60–75 percent of uncompensated care is generated by patients who have no health insurance; the rest are costs beyond the amount covered by insurance that the patient does not or cannot pay.[100] Although maternity patients are more likely than other hospitalized patients to pay their bills, maternity and newborn care is nonetheless the biggest single source of uncompensated care: In 1981, obstetrics patients accounted for 45 percent of all hospital patients who received uncompensated care and for 28 percent of all uncompensated care charges.[101] A study conducted in 1982–1983 in Vanderbilt University Hospital found that care of newborns accounted for almost half of unpaid bills of more than $25,000, and the average unpaid charges for newborns came to $6,185.[102] Studies conducted in the 1980s in South Carolina, Tennessee, Texas and Virginia produced similar findings.[103]

Currently, about 27 percent of the $7.4 billion in uncompensated hospital care charges is accounted for by unpaid bills for maternity care—an estimated $2.0 billion of the $16.0 billion spent for maternity care in 1985. This estimate of uncompensated charges for hospital care includes $57 million generated by charity patients, $817 million from bills of Medicaid patients for services not reimbursed by Medicaid, $690 million from bills unpaid when there is insufficient private insurance, $427 million that is unpaid when the patient is billed directly and $29 million from bills unpaid by coverage from other sources (see Table 13).*

In the past, private hospitals often sought to shield themselves from the risk of unpaid bills by refusing to admit indigent patients who had no insurance. Congress has recently authorized penalties for physicians and institutions that turn away women in active labor,[104] but the law does nothing to prevent them from refusing care to women who are in the early stages of labor—a nice distinction that is more appropriately made in a textbook than in an emergency room—or who have pregnancy complications. In a survey of state directors of maternal and child health taken shortly after the law went into effect, all but 14 said some hospitals in their states turn maternity patients away, and 13 said that some hospitals deny admission to women not in active labor.[105]

Women who have no health insurance may also be asked to pay a preadmission deposit. At least some hospitals in eight out of 10 states surveyed by the AGI in 1987 require a deposit averaging about $510 from uninsured maternity patients.[106] Forty-eight percent of community and migrant health centers reported that at least one hospital in their community requires such a deposit, generally between $500 and $1,000. Although about half of the agencies have successfully negotiated agreements allowing their patients to be admitted without a deposit, virtually all said some patients have to be admitted on an emergency basis.[107] In such instances, the physician who assists with delivery usually does not know the patient or her problems and has no medical records for guidance.

Conclusions and Recommendations

The United States is one of the few industrialized countries that does not have a universal health financing system that guarantees uniform basic medical care to all who need it. Health care in the United States is, however, heavily subsidized by the federal government. Indirect subsidy is provided through tax rebates to employers who insure their employees and through tax deductions for individuals whose medical expenses reach certain levels. Direct government subsidies are provided through such programs as Medicare for the elderly and the guaranteed health benefit programs for dependents of members of the armed forces, and for veterans and their dependents. Finally, the federal government provides over half the money for the state-administered Medicaid programs.

An individual's health insurance coverage at any given time depends on such changing factors as employment status, type of work, state of residence, family structure, income and assets, age, disability and even existence of a particular medical condition, such as end-stage renal disease.

Table 13. Charges for maternity care, by type of charge, and hospital charges, by whether compensation is received; according to source of payment, 1985 (in millions of dollars)

Source of payment	Total	Hospital		MD and other
		Uncompensated	Compensated	
Total	**$15,995**	**$2,020**	**$9,289**	**$4,686**
Blue Cross	3,302	230	2,070	1,002
Other private	6,612	460	4,141	2,011
Medicaid	2,954	817	1,352	785
Other govt.	650	0	472	178
Patient/family	2,004	427	997	580
Other	393	29	257	107
Charity	80	57	0	23

Sources: For average charges per mother for maternity care, see sources for Table 4. Estimates of distribution of births by expected source of payment, and estimates of proportions of newborns delivered by cesarean section and delivered vaginally, calculated from DHHS, 1984 National Hospital Discharge Survey, and applied to number of births that occurred in 1985 (see reference 3).

Under such a patchwork system, it is not surprising that certain individuals and groups are disproportionately without insurance. The number of uninsured people is rising. Some reasons for that increase are the growth of employment in low-paid areas with few fringe benefits, continued high unemployment among minorities and young people, increased part-time employment and the high cost of insurance. The last of these results from a disproportionate inflation in medical expenditures due to the development of sophisticated medical technologies and the sharp increase in malpractice insurance premiums.

At the same time, tighter federal and state budgets have curtailed government health benefits and services, resulting in pressure on physicians and hospitals to accept lower reimbursement for services rendered to Medicare and Medicaid patients. Escalating medical costs have caused private employers to limit the benefits offered to their employees. Employers have also become increasingly resistant to paying higher premiums and the hidden surcharges on hospital bills that have traditionally been used to cover the cost of care to the uninsured. Many hospitals and medical practitioners have taken to selectively accepting insured patients, whose bills are most likely to be paid, and discouraging or even turning away others.

These problems have prompted discussions at all levels of government and within the private sector about how to obtain more uniform and comprehensive health insurance coverage for everyone. Some improvements are already evident. For example, in 1986, Congress enacted legislation to end the frequent automatic loss of health insurance coverage for individuals who terminated employment, whose insured spouse died, who became divorced or separated from the insured person, or who passed the maximum age allowed for dependent coverage. Under the new law, these persons can continue participation in the existing group plan at their own expense for a period of 18 months to three years. These new provisions should offer substantial protection against the sudden loss of insurance coverage for those who can afford it. Additional legislation has been introduced in Congress that would require all employers to provide basic insurance coverage to their employees and that would expand public financing for those currently ineligible for employment-related coverage. Immediate, far-reaching, truly national reform, however, seems unlikely at this time.

Improving Maternity Care Financing

As this article has shown, women having babies in the United States typically have low or modest incomes, primarily because they are young and starting out in the work force. Therefore, they are more likely than other groups in our society to be without health insurance or to have inadequate coverage. Although most pregnant women receive some prenatal care, and virtually all deliver their babies in a hospital, there is abundant evidence that late, discontinuous medical supervision during pregnancy and uncertainty about childbirth arrangements are distressingly common. The Congress and state legislatures have in the past few years demonstrated special concern that adequate prenatal and maternity care be available for all those who need it. This concern may have followed the realization that investment in the health of women during pregnancy and childbirth is a prudent and relatively low-cost commitment to the future well-being of children, families and society as a whole.

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*The estimates of uncompensated care charges are obtained by applying assumptions about the proportion of charges that will remain unpaid to the total hospital charges for maternity care for each source of payment category. We assume that 10 percent of hospital charges where there is private insurance or other coverage will not be paid, that 30 percent of charges billed to the patient or the family will not be paid, that all charges for charity patients will remain unpaid, and that none of the charges where there is coverage by government programs other than Medicaid (largely CHAMPUS) will be unpaid. For charges where there was Medicaid coverage, an estimate of total reimbursed maternity care charges was available (see reference 67); we assumed that this proportion, 38 percent, applied to hospital charges as well as to total charges.

In 1978, the Congress, as noted earlier, passed the Pregnancy Discrimination Act to end the common practice among private health insurers of excluding maternity benefits from the policies they issue. This law requires most employment-related group health insurance and other health benefit programs to cover pregnancy-related medical care (except abortion) just as they cover all other kinds of medical care. As a result, most—but, as we have seen, not all—women covered by group health policies are now covered for maternity care.

In 1986, Congress broadened Medicaid eligibility requirements for pregnant women and effectively severed the connection between their eligibility for Medicaid and their eligibility for welfare payments under the Aid to Families with Dependent Children (AFDC) program. Under AFDC, welfare assistance is given to needy children and their adult caretakers according to income standards established by each state. In most states, benefits are limited to unmarried mothers and the children living with them. The Medicaid program was created in 1965 to provide medical care for these same families. The Congress, when it created a new category of eligible persons—pregnant women—based solely on financial need and on nationally set income criteria, has made a radical departure from traditional concepts and laws. As a result of this congressional action, states are permitted, though not required, to provide Medicaid coverage for pregnant women and young children who may have family incomes up to the federally established poverty standard ($9,300 for a family of three in 1987). The Congress may further extend the maximum allowable income limit—perhaps to the level permitted for the Special Supplemental Food Program for Women, Infants and Children (185 percent of the poverty standard, about $17,200 for a family of three). If it does, the federal government will continue to assume at least half of the cost. However, Medicaid expenditures are a large, and a steadily growing, component of many state budgets, and state governments face considerable public pressure to keep down the costs of what is widely viewed as a "welfare" program.

It is improbable, therefore, that all states will rapidly and uniformly expand coverage, and the ones least likely to be able to do so are poor states where the need is most acute. Even states that take advantage of the new option may be reluctant to embark on aggressive efforts to inform pregnant women of the expanded eligibility requirements, enroll them quickly and facilitate their participation. Finally, if they increase maternity care expenditures for Medicaid and, thereby, relieve the burden of uncompensated care carried by insurers and hospitals, states may be tempted to reduce other expenditures for community-based programs, education and outreach targeted at high-risk groups of women and children.

Furthermore, changes in eligibility alone—or even implementation of suggestions that uninsured persons who cannot afford private insurance be allowed to "buy into" Medicaid—will not have much effect unless major changes are also made in the way the Medicaid program works. In particular, states may have to be given incentives to *encourage* people to apply for Medicaid rather than seek to deter such applications. Poor but employed individuals may well be discouraged from applying because they cannot easily make several visits to the local welfare office during working hours to establish eligibility. To decrease the number of women without medical coverage, states will have to make vigorous efforts to inform people that they are eligible for Medicaid and to simplify, speed and humanize the application process.

To encourage women to seek early prenatal care and to stimulate health care providers to offer services, Congress recently revised the Medicaid law so that states could give local health care providers authority to serve pregnant women thought to be eligible and, pending a determination of their eligibility, to claim Medicaid reimbursement. As of mid-1987, however, only seven states had taken advantage of this option.[108] In addition, as we have seen, many health care providers, especially physicians in private practice, are unwilling to accept Medicaid patients. This situation is not likely to change so long as Medicaid reimbursements are low, slow and uncertain, and so long as the paperwork remains voluminous and complex.

Finally, despite the exception that Congress has made to the linkage between receipt of Medicaid benefits and welfare payments, Medicaid retains its image as a program for welfare recipients. This linkage profoundly affects and perpetuates the way in which Medicaid is administered, the negative way it is viewed by the public and the stigma those who might benefit from its expansion generally attach to the receipt of welfare-related benefits.

Next Steps

The major steps taken by Congress and some states to extend insurance coverage and services to pregnant women and their children are encouraging. But they need to be carefully and continuously monitored, since changes in the law are rarely self-executing. In considering the findings of the study summarized here, The Alan Guttmacher Institute, after consultation with an advisory panel of experts from a wide variety of fields,* has suggested certain measures that could be taken to alleviate some of the obvious difficulties in existing insurance coverage. These include the following:

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*The panel was chaired by C. Arden Miller, professor of maternal and child health, School of Public Health, University of North Carolina at Chapel Hill. The other members are: Cathy Amkraut, manager, public policy, Washington Business Group on Health, Washington, D.C.; Richard E. Behrman, dean, School of Medicine, Case Western Reserve University, Cleveland; Sarah Brown, study director, Prenatal Care Outreach, Institute of Medicine/National Academy of Sciences, Washington, D.C.; Janet Chapin, administrator, Division of Women's Health Care, American College of Obstetricians and Gynecologists, Washington, D.C.; Richard Curtis, director of health policy studies, National Governors' Association, Washington, D.C.; Claude Earl Fox, state health officer, State of Alabama, Montgomery; Jack Hadley, codirector, Center for Health Policy Studies, Georgetown University School of Medicine, Washington, D.C.; Marsha Henderson, chief, Analysis and Information Section, Division of Maternal and Child Health, DHHS, Washington, D.C.; Bonnie Connors Jellen, manager, Center for Women's and Children's Health, American Hospital Association, Chicago; Janet Kail, employee benefits specialist, American Federation of State, County and Municipal Employees, Washington, D.C.; Luella Klein, chief of obstetrics, Grady Memorial Hospital, Atlanta; Lorraine V. Klerman, head, Division of Health Services Administration, Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, Conn.; Ann M. Koontz, chief, Maternal and Infant Health Branch, Division of Maternal and Child Health, DHHS, Washington, D.C.; Marion Ein Lewin, senior staff officer, Institute of Medicine/National Academy of Sciences, Washington, D.C.; Debra Lipson, senior research associate, Intergovernmental Health Policy Project, Washington, D.C.; Calvin Michaels, director of personnel administration, Burlington Industries, Greensboro, N.C.; Richard M. Narkewicz, vice president, American Academy of Pediatrics, South Burlington, Vt.; Sara Rosenbaum, director, Child Health Division, Children's Defense Fund, Washington, D.C.; Linda Schofield, assistant director of government and public affairs, The Travelers Insurance Company, Hartford; Eileen Wilhelm, chairperson, board of trustees, The Catholic Health Association, and president and chief executive officer, Mercy Medical, Daphne, Ala.

- Require coverage for maternity care of all women insured under private policies, whether purchased individually or as part of a group, and coverage for all newborns from the moment of birth. Make certain that spouses and nonspouse dependents are covered in all employment-related policies.
- Establish uniform coverage of all necessary physician and hospital services for pregnant women and newborns, including physician care of well babies in the hospital.
- Waive waiting periods and restrictions on coverage of preexisting medical conditions for all care related to pregnancy and childbirth.
- Gradually expand the Medicaid program to cover maternity and newborn care for those who cannot purchase private health insurance, with premiums graduated on the basis of a family's ability to pay.
- Require states, or at least provide financial incentives to them, to make aggressive efforts to inform poor women about the availability of Medicaid subsidy for maternity care.
- Mandate or give financial incentives to states to process Medicaid applications from pregnant women within a reasonable period of time—say two weeks from the first contact.
- Establish state systems not linked with the welfare system to handle Medicaid applications.
- Give states incentives to offer health care providers reasonable reimbursement for maternity and newborn care and to reimburse providers at periodic intervals during pregnancy, if the provider wishes to bill periodically.
- Encourage states to reimburse adequately all clinics that provide prenatal care services (including nutritional, educational and outreach services) to Medicaid-eligible women.
- Expand educational programs aimed at reducing unplanned pregnancies, especially among teenagers, and increase the availability of free or low-cost family planning services.
- Strengthen community-based services, such as are provided in MCH-supported clinics and community and migrant health centers, and improve their connections to the hospital where the delivery will occur to assure continuity of care. (These types of services will continue to be needed by poor women at high risk of adverse birth outcomes even if all are eventually covered by health insurance.)
- Educate employers and insurers about how inclusion of prenatal care in insurance benefits actually saves money that would otherwise be spent for treatment of complications suffered by infants whose mothers did not get proper preventive care.
- Expand research that examines the impact of current medical practices on pregnancy and delivery.
- Improve coordination among the various public programs providing or financing prenatal care and between the providers of prenatal care and the providers of delivery services.
- Finally, address through legislation the problems created when hospitals turn away patients with pregnancy complications or who are in the early stages of labor.

An Alternative Approach

Implementation of these recommendations, according to the Institute, could improve the current patchwork system of coverage for maternity and infant care and help relieve financial pressures on consumers, providers, employers and insurers. It is doubtful, however, that all of these suggestions will be adopted, that they will be adopted by all states or that they will be adopted within a reasonable period of time. If the goal is to make certain that all women of reproductive age and their families have insurance coverage for at least basic prenatal, maternity and infant care, an alternative approach, the Institute believes, would be to provide such coverage through a uniform nationwide system on the grounds that such a system would be less cumbersome and expensive to administer than the many different systems currently employed; it would eliminate the state-by-state variations in eligibility and benefits inherent in the Medicaid program, and also circumvent the stigma attached to programs designed and administered with only welfare clients in mind. As has been shown repeatedly in this article, most of the expenses of maternity and infant care are already being paid by somebody—if not by private insurance or Medicaid, then eventually by the public, through inflated premiums, taxes or charity. The only "new" expenses of a nationwide system would be for early prenatal care. However, these expenditures are relatively small and would undoubtedly save money in the long run by improving the health of new mothers and newborns. Such a universal system could be financed through a combination of public and private revenues and be administered under the auspices of the federal government, as are Medicare and Social Security. It would provide a basic, uniform benefit package with built-in cost control provisions, and would cover all pregnant women and their babies, regardless of family income.

Dollars Not All

There is less-than-perfect agreement about what maternity care services are optimum or necessary and under what circumstances they need to be provided. Controversies about the relative value of different interventions have led to confusion among providers and insurers, and to inconsistent coverage of various services and procedures by both public and private insurers. Understandably, as these affect both quality and cost of care, this ambiguity about what *should* be provided is of great concern to employers, insurers and taxpayers. Professional groups and institutions representing physicians and hospitals may achieve consensus on some of these issues, but consumers and payers are often left out of the process. (Such representation is missing, for example, from the expert panel convened by the Public Health Service to formulate recommendations on the content and efficacy of prenatal care.) As its final recommendation, the Institute has suggested that the President or the Congress should convene a commission, including representatives of medical organizations that set standards, public and private insurers, employers, consumers and providers of maternity care, to define the content and reasonable costs of a basic maternity and newborn care package that all payers should cover.

Adequate and effective financing would not solve all the problems we now face, but it would help—considerably. What is more, such a financing system would probably cost society as a whole no more (though it would redistribute those costs) than does the patchwork of inadequate and inconsistent programs and policies that now finance maternity care in the United States. Certainly, it seems unconscionable that we as a society appear to care so little for the next generation that we cause couples to hesitate about having a baby for fear they can't afford proper medical care, and place obstacles in the way of pregnant women who seek and need such care.

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Comment

A Review of Maternity Care Programs in Western Europe

By C. Arden Miller

Infant mortality rates are generally lower in Western Europe than in the United States, a circumstance that has attracted comment from health policy analysts for several decades. During this time, the rates have continued to improve among all industrialized nations, but the United States has fallen even lower in the ranking of nations with the most favorable rates.[1]

The continuation of adverse trends in several indicators of maternal and infant health in the United States has caused additional concern that social and medical support and services for American women who become pregnant are not adequate to their needs.[2] To identify new programs and policies that might improve maternal and child health in this country, it seems appropriate to analyze the prenatal and maternity care practices of nations that lead all others in infant survival. An opportunity to review maternity support programs, services and financing in Europe came with the completion in 1982 of a 23-nation survey conducted by the Perinatal Study Group of the Regional Office for Europe (EURO) of the World Health Organization (WHO). Although the details and results of the survey are summarized in two descriptive works,[3] these publications do not contain country-specific data. The aggregation of survey findings among countries with diverse social and political traditions and with a wide range of achievements in perinatal care obscures models that might be of special interest to U.S. policy-makers.

In 1986, Marsden Wagner, director of maternal and child health for EURO, granted me permission to review the raw responses to the 1982 EURO survey. He also arranged for the national files at EURO to be opened for my inspection, and he made available to me the WHO's forthcoming *Seventh Annual Report on the World Health Situation*.[4] That work contains the WHO's most recent statistics on the health status of each country, as well as narratives on their health care systems. Periodic reports from the United Nations Children's Fund (UNICEF) and the World Bank provided other useful information. I also reviewed English-language articles on perinatal care in Western Europe and visited academics, health officials, researchers and clinic staffs in Belgium, Denmark, the Federal Republic of Germany, the Netherlands and the United Kingdom.

Data Characteristics

The survey by the Perinatal Study Group included nations with a variety of health care systems: countries in which maternity care and delivery are provided exclusively through public institutions, such as health centers and maternity outpatient and inpatient departments; those in which midwives and doctors in private practice provide the majority of care; and countries with systems that retain features of both extremes. I excluded from my review countries with purely public systems of health care, because I believe that the experience of those countries has little relevance for U.S. policy. On this basis, Finland and Sweden were excluded, even though both countries have outstanding records in maternity care. In both, nearly all prenatal care is rendered in public clinics, and women must deliver in a hospital that is determined by their place of residence, practices unlikely to be adopted in the United States.

After the exclusion of countries with populations of less than one million and those with infant mortality rates less favorable than the 1982 U.S. rate of 11.5 deaths per 1,000 live births,[5] 10 countries remained for review. Those countries and their 1982 infant mortality rates are Belgium, 10.1 deaths per 1,000 live births; Denmark, 7.7 deaths; the Federal Republic of Germany, 10.2; France, 9.4; Ireland, 10.1; the Netherlands, 8.4; Norway, 7.9; Spain, 9.6; Switzerland, 7.6; and the United Kingdom, 10.0.[6]

Inclusion of the United Kingdom deserves comment. Even though Britain has had a unique public system, the National Health Service, since 1948, pregnant women do have a choice as to where they deliver, a small sector of physicians in private practice remains, and coverage by private health insurance plans is of growing importance. In addition, although physicians in the United Kingdom contract with the National Health Service, they are not government employees. The inclusion of Spain and Ireland is of interest because these two countries are less affluent than other nations in the study. Both countries have reformed their national health services in recent years and have achieved impressive new records for infant survival.

The EURO survey responses I analyzed were enormously instructive but diverse in style. Some questions that asked for data were answered in a narrative form. Others that requested a narrative were completed by a single word or by a copy of a multipage published report. My review gives attention to descriptions and undocumented generalizations included by some respondents if these contribute to a better understanding of practices that the survey indicates are well established.

Research on prenatal care in the United States focuses on the timing of the first visit and the number of subsequent visits, because these data are readily available on birth certificates. Issues of cost and cost-effectiveness also attract attention, but scant data are available on the content of

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prenatal care. Insofar as any criteria for the adequacy of care have been developed in the United States, they are framed in terms of the number of visits during the various stages of pregnancy.

Corresponding data do not always exist for Europe; for understandable reasons, precise documentation of prenatal care is not associated with the same sense of urgency as prevails in the United States. Data are available on the number of prenatal visits women make to various providers, and an upcoming report indicates that fewer than two percent of women who deliver have had no prenatal care,[7] a figure not appreciably different from that in the United States. However, information on the timing of the first visit is conspicuously lacking. All the maternity care experts in the five countries I visited insisted that getting women to visit the doctor early in their pregnancy is not a problem, because many maternity benefits are forthcoming once the pregnancy has been confirmed and registered with the appropriate official agencies. These tasks are completed at the first prenatal visit. However, some women do not continue after the first visit, and efforts to improve focus on these women.

Each of the 10 countries included in my review has established official standards of maternity care, and these are expressed in terms of entitlements to health services and social supports. The number of prenatal visits, examinations, laboratory tests, screening procedures, home visits, income transfers and other benefits that pregnant women are entitled to are all spelled out in detail. In some countries—Norway, for example—both the number and the content of prenatal visits are set by government recommendation rather than by law. The EURO survey included data on the use of such screening procedures as blood tests, amniocentesis and ultrasound, and those results have been reported elsewhere.[8]

The complete results from a survey of the teaching hospitals of Europe, conducted to determine the contents of prenatal care in their clinics, are not yet available. However, the preliminary findings indicate that there is a great deal of variation among nations.[9] For example, in France and Germany, the cervix is routinely examined during prenatal visits; in the United Kingdom—and the United States—such examinations are done only for special indications. The advantages and disadvantages of these two approaches have not been evaluated.

Data on the cost of prenatal care and its various components are lacking for the 10 countries. Even when the aggregate costs are reported, comparisons are suspect; some reports appear to include income supplementations that are associated with childbearing, and others appear to confine their findings to medical costs.

Most cost analyses that are available focus on the use of hospitals. Many countries have attempted to reduce hospital expenses through home care and outpatient visits. These strategies are considered to be less expensive than hospital care, but cost-benefit analyses of them are not generally available. An exception is the Netherlands, where the expense of extensive postnatal home visits has been reviewed.[10]

Country Characteristics

The heterogeneity of the U.S. population is often cited as a factor that makes health care delivery more problematic in the United States than it is in Europe. That reasoning is weakened when one considers the level of postwar migration into Western Europe from the Middle East, North Africa and various former colonies. For example, foreign-born persons make up 11 percent of the population of France, 17 percent of that of Switzerland and nine percent of the population of the United Kingdom.[11] Proportions are much higher for some cities: 18 percent of the population of Amsterdam,[12] and 24 percent of that of Brussels,[13] is foreign-born. The large contribution made by immigrant populations to the overall level of childbearing is strikingly illustrated by 1981 data on children younger than five living in Amsterdam—45 percent had been born to immigrant families, most commonly Surinamese or Moroccan.[14]

Many European reports find that immigrant women are less likely than nonimmigrant women to use health services and that their pregnancy outcomes are less favorable. However, not all the data on use of health services are consistent with this finding. A study of deliveries occurring at a large London hospital shows the quality of prenatal care among various nationalities to have been similar.[15] In Amsterdam, 70 percent of Dutch women and 50 percent of immigrant women obtain prenatal care within the first 16 weeks of pregnancy; subsequently, the immigrant women make more frequent visits.[16] In Munich, women of foreign origin (who make up about 20 percent of the city's delivery patients) use public health services at the same rate as German women.[17] However, pregnancy outcomes in both Amsterdam and Munich are less favorable for immigrant women, and the findings are similar in Belgium: During 1983, babies born to Belgian women experienced a perinatal mortality rate of 10.7 deaths per 1,000 live births, while babies born to Turkish women had a mortality rate of 17.8 deaths, and those born to North African women, one of 14.8.[18]

These data are not presented to demonstrate that immigrant families in Europe face circumstances parallel to those encountered by minority families in the United States. Almost certainly, different sets of problems exist in each country, but all involve the overcoming of sociocultural barriers. Some special measures have been taken by European countries to break down those barriers (the Dutch system provides instantaneous translations by telephone when health care providers and their patients encounter a language problem), but none of the EURO survey responses or other descriptive material identified any well-organized educational campaigns or other outreach efforts specifically directed at foreign-born residents.

Levels of urbanization are high in most of the countries, ranging from 57 percent in Ireland to 96 percent in Belgium. As a result, medical services are likely to be readily accessible in most of the countries. However, four countries (France, Ireland, Norway and Switzerland) have populations that are less concentrated into urban areas than is the U.S. population.[19] Norway's population, for example, is widely scattered among many isolated communities. Nonetheless, the average number of prenatal visits varies only from 10-14 among women from various parts of the country. Pregnant women who live in remote areas of Norway are also reimbursed for up to 10 days' worth of travel and living expenses, so that they can relocate near a hospital as their delivery time approaches.

Cesarean section rates are consistently lower in Europe than they are in the United States, even though the trend is increasing in all countries. In 1983, the proportion of deliveries performed by cesarean section ranged from five percent in the Netherlands to 13 percent in Denmark and West Germany.[20] In 1985, the proportion in the United States was 23 percent.[21]

The rate of childbearing among women aged 15–19 is considerably higher in the United States than in the European countries: In 1982, there were 54 live births per 1,000 women aged 15–19 in the United States,[22] compared with seven births per 1,000 in the Netherlands and 28 births per 1,000 in the United Kingdom.[23] Teenage childbearing is comparatively high among both blacks and whites in the United States, and the rate would be even greater if abortion did not interrupt nearly half of teenage pregnancies. Fertility rates among European teenagers have never been as high as those in the United States, and they declined dramatically during the 1970s—by as much as 70 percent in the Netherlands and the Federal Republic of Germany.[24] In contrast, the U.S. rate dropped only 16 percent during the same period.[25] The decline in Europe occurred amid extensively expanded medical and social benefits for pregnant women, including income supplements.[26] Thus, the decline lends no support to arguments that maternity-related benefits promote fertility among teenagers.

All countries in the study except for the United Kingdom have proportions of low-birth-weight babies lower than the 7.0 percent found in the United States. Even the proportion reported among U.S. whites (5.7 percent) is still substantially higher than the best European rates (4.0 percent in Ireland, the Netherlands and Norway).[27] These differences cannot be explained entirely by the larger proportion of babies born to U.S. teenagers. When corrections are made for other variables known to influence the low- birth-weight rate, the contribution of maternal age is small.[28]

A threefold difference in gross national product (GNP) separates the European countries with the lowest per capita values from those with the highest (Ireland and Spain with values of $5,230 and $5,640, respectively, and Switzerland with $17,430). The comparable figure for the United States ($12,820) is higher than that for six of the study nations, all of which have better records of infant survival.[29] However, the gap between rich and poor is greater in the United States than in any of the European countries except France, as can be shown by comparing the proportion of household income that goes to the top 20 percent and the bottom 20 percent of the population. The narrowest differential exists in Belgium and the Netherlands, where the top quintile gets 36 percent of household income and the bottom quintile, eight percent. In the United States, the comparable figures are 40 percent and five percent, and in France, they are 46 percent and five percent. (The data are for the years 1979–1982, except in France, where they are for 1975.[30]) The data seem to indicate that selective and direct approaches undertaken to improve pregnancy outcomes can achieve low infant mortality rates, even in countries where the average household wealth is much less than that of the United States and where income distribution is not much better, or even worse.

None of the European countries spends as high a proportion of its GNP on health care as the United States does (11 percent).[31] Countries that emphasize insurance systems to reimburse private physicians on a fee-for-service basis (Belgium, the Federal Republic of Germany, France and Switzerland) tend to spend more (an average of eight percent of GNP) than do countries that compensate providers at a fixed per capita rate (Denmark, the Netherlands, Norway and the United Kingdom—an average of seven percent of GNP) or those that make extensive use of public clinics (Ireland and Spain and some areas of Norway and the United Kingdom—an average of six percent of GNP).

While the means of providing health care and the method of financing it vary greatly among the European countries, all have been consistent in pursuing vigorous policies to reduce hospitalization, other than for delivery.[32] They have also emphasized the decentralized administration of community services, while maintaining uniform national standards for preventive health measures. Increasingly, the responsibility for providing health services has been placed on local governments, while the central government's role—to set and monitor standards and to provide financing—has been strengthened.

The various methods used to finance health care bear no consistent relationship to the methods of providing health care. Insurance and social security methods predominate, with premiums being paid both by employers and by workers. Insurance is government-run or -controlled in Belgium, the Netherlands and Spain, is predominantly privately controlled in Switzerland and is composed of a combination of public and private systems in the Federal Republic of Germany and France. In the remaining four countries, office-based general practitioners provide most of the primary care; their salaries come in large part or entirely from general tax revenues.

Maternity-Related Services

In Belgium, the Federal Republic of Germany, France, Norway and Switzerland, a pregnant woman normally seeks prenatal care from a general practitioner or obstetrician of her choice. In Denmark and the United Kingdom, every person is registered with a general practitioner, who provides access to specialized medical services. In the United Kingdom, a woman's general practitioner ordinarily continues her prenatal care if she has an uncomplicated pregnancy, arranging for visits with a midwife and for consultations with an obstetrician at the hospital where the woman will deliver. In Denmark, a precise schedule is followed that includes three visits to the general practitioner, two visits to an obstetrician and five to a midwife.

A woman in the Netherlands first contacts a general practitioner and then makes a decision to continue that care or be transferred to a private midwife, who will also deliver the baby. An obstetrician is seen only for complicated pregnancies. In Ireland and Spain, women may seek care from an obstetrician or general practitioner of their choice, but recent emphasis has focused on providing primary care through multidisciplinary public clinics. The general practitioner's role in health care is now primarily as a participant in these clinics. There is a strong tradition in all the European countries for specialists to be hospital-based and to provide consultations in hospital outpatient departments.

Midwives are extensively involved in European maternity care. Their work is ordinarily confined to giving prenatal care in multidisciplinary clinics and to attending the uncomplicated deliveries of women who receive routine care from office-based general practitioners. In the Netherlands, however, they are independent office-based practitioners. In Denmark, midwives work out of public offices or private clinics and participate in a schedule of routine prenatal care. A Norwegian government report recommends 12 antenatal visits for uncomplicated pregnancies, half made to a midwife and half to a general practitioner.

Five countries (Denmark, the Federal Republic of Germany, France, the Netherlands and Switzerland) either have phased out public health clinics or have elected not to develop them because access to physicians' offices is considered to be assured and universally utilized. In the remaining countries, health clinics are sometimes available as an alternative to office-based physician practice. In Norway, for example, each municipality is required to maintain at least one multidisciplinary health center, even though private care may be readily available. In Belgium and the United Kingdom, multidisciplinary public health clinics have been developed in selected locales to enhance services for hard-to-reach populations. Ireland and Spain have recently pursued policies that dramatically extend the availability of public health clinics for primary medical care and for a number of social services. Both countries pursued that strategy to improve health conditions without incurring major increases in expenditures.

The officially required or recommended number of antenatal visits for an uncomplicated pregnancy varies enormously, from four in Switzerland to 12 in the Netherlands, Norway and the United Kingdom.

The average number of visits actually made closely approximates the legal or recommended number in those countries that have 12 visits as a standard. In Denmark and Spain, which each recommend 10 visits, women average eight and six, respectively, while in France, which recommends seven, women average six visits.

Home visiting is a feature of nearly every country's maternity care. Home visitors are sometimes midwives, but more often they are specially trained nurses. They routinely make at least one prenatal home visit in Belgium, Denmark and the Netherlands, but in the other six countries, they do so only to check on women who have missed their appointments or who have complicated pregnancies. (No data are available for Spain, which is currently implementing a home visiting program.)

Postnatal home visits are made at least once in Belgium, Denmark, Ireland, Norway and Switzerland. They are made only for special indications in the Federal Republic of Germany and France. Postnatal visits are used most extensively in the Netherlands and the United Kingdom, where women receive home visits every day for the first 10 days after delivery. In addition to visits made either by the midwife or by the general practitioner, every woman in the Netherlands receives visits by a specially trained maternity helper, who stays with the mother and infant for up to eight hours a day through the 10th postpartum day. The aide helps with infant care, shopping, housekeeping, the preparation of meals and the care of other children in the family. In 1986, each newborn and mother in the Netherlands received an average of 64 hours of postnatal home visiting.[33] Several reports have emphasized that this practice is less expensive than keeping women and their babies in the hospital beyond 36 hours in the absence of specific medical indications.[34] For this service, the family pays only a token fee. In all countries, postnatal home visits are seen as a means to provide counseling about infant care and family planning, to follow up on the mother's health, to initiate screening procedures for the newborn and to arrange additional appointments for the infant and mother.

The proportion of home deliveries has declined in all the study countries and remains high only in the Netherlands, where home deliveries are officially supported. The 35 percent of deliveries that occur at home in the Netherlands is in sharp contrast to the one percent or less reported in the other study nations. The Dutch insurance system will not compensate for a hospital delivery that occurs in the absence of a specific medical indication from an authorized list. New perinatal guidelines in Denmark also encourage home deliveries, which are increasing in some areas.

Precise data are not available on the duration of hospital stays for childbearing, but evidence from Denmark, Ireland and the Netherlands suggests that the average stay is longer than in the United States and that when the stay is less than five days, the postnatal home visits increase in frequency and duration. The Netherlands also provides for polyclinic deliveries, in which the woman is attended by her midwife and stays in the hospital up to 36 hours. The delivery is not recorded as a hospital admission, and the hospitals are not compensated as much as for an admission. About one-third of the nation's deliveries are of this type.

Continuity of care—in the sense that one provider attends the patient throughout the prenatal, intrapartum and postnatal periods—is not a prominent feature in any of the study countries. General practitioners, whether in private practice or in the public sector, do not ordinarily have hospital privileges. Under such a system, communication among the different providers is very important, because a pregnant woman may receive prenatal care from more than one practitioner, be delivered by another provider and be visited postnatally by yet a different health care worker. However, the woman retains part or all of her medical records, facilitating continuity.

The EURO survey inquired about the use of public education programs and the media to inform women about the desirability and availability of prenatal care. The responses indicate that programs exist in all countries, often under the auspices of volunteer organizations or public interest groups, but activities appear to be random and not systematically organized.

Financial Benefits

All countries except Denmark pay women a financial bonus at the time of delivery. The payment is intended to assist with the cost of supplies and equipment for the new baby. Switzerland pays an additional bonus to mothers who breastfeed. As an incentive for prenatal care, France pays its bonus only to women who have made at least three prenatal visits. (At one time, West Germany's birth bonus was also contingent upon a specified number of prenatal visits, but that restriction has been discontinued.) The number of prenatal visits in France, particularly among Algerian immigrant women, improved markedly during the 1970s, when the proportion of pregnant women with fewer than four prenatal visits fell from 15 percent to four percent.[35] Whether financial incentives are responsible for the improvement is open to debate; attempts to evaluate their effectiveness have been inconclusive.[36]

The French use of a bonus as an incentive for prenatal care is overt. In all countries, however, the full range of benefits and supports associated with childbearing—transportation privileges, preferential hospital booking for delivery, paid maternity leaves, birth bonuses, family allowances, housing preferences and home visitors who counsel, instruct and even help with the shopping and housework—could be regarded as incentives to register the pregnancy and impending delivery with the appropriate agencies. Rather than ask why pregnant women participate so early and so consistently, the question might instead be, why wouldn't they?

Each of the 10 countries provides paid maternity leave and restricts the working environment of pregnant women. The usual practice in most countries is to transfer women to nonstrenuous jobs as soon as the pregnancy is confirmed. Pregnant women are forbidden to work at night in Belgium, the Federal Republic of Germany, the Netherlands and Switzerland, although exceptions may be made in certain job categories or with the woman's consent. The law in several countries specifies that women must be paid if they miss work for prenatal visits or childbirth classes.

The duration of paid maternity leave varies from nine weeks in Ireland to 40 weeks in the United Kingdom. In most countries, the leave is obligatory. In Belgium, Norway and Switzerland, the woman may elect to work until delivery and take all leave postnatally. Leave is often extended if the delivery is premature. In Norway, the father also may take up to 12 weeks of paid postnatal leave if he is the principal care-giver; West Germany allows either parent to take the postnatal leave.

Leave can often be extended on an unpaid basis without loss of the job or job-related benefits. Such extensions are possible in France and the Federal Republic of Germany for one to three years. In Belgium, the period of paid leave can be extended as unpaid leave up to the end of the fifth month for mothers who breastfeed, and in France and Norway, nursing breaks for women who return to work are provided by law. In the event of illness, additional paid sick leave is given in all countries on medical authorization.

The amount of pay that women are entitled to during their maternity leave varies. In Spain, women receive 75 percent of their salary, and in Denmark and France, they receive 90 percent. Belgium, the Netherlands, Norway and West Germany allow 100 percent, up to a maximum amount. The remaining three countries provide for a fixed payment, regardless of salary.[37] The source of funds for the paid leaves also varies. Most often, the money is provided by social security or health insurance rather than by the employer, an arrangement that may protect women of childbearing age against discrimination in hiring.

All 10 countries also pay monthly family allowances for each child, ordinarily until adulthood or until completion of education. In four of the countries, families with two children receive 2–5 percent of the nation's average industrial monthly wage, and in five countries, such families receive 10–13 percent of the average wage.[38]

Some other maternity-related benefits are noteworthy. For example, Belgium allows a pregnant woman to travel first-class on a second-class rail ticket as a way of assuring her a seat in a population of commuters. Most countries give additional help to single mothers, and working mothers or mothers of large families have priority in day care and public housing.

Conclusions

This review of the maternity care and services in 10 Western European countries that enjoy more favorable infant mortality rates and birth-weight outcomes than does the United States finds that patterns of maternity care vary greatly from one country to another, with one important exception: No pregnant woman in Europe needs to ask how or where she will receive care or who will pay for it. All of the countries studied provide various options for prenatal care, but the options are all part of well-defined provider systems that are universally available, are well-known and involve no charges or negligible charges.

Research empiricists will be disappointed that careful studies are not available to measure the relative impact of the various interventions. In most countries, this lack has not prevented the energetic provision of supports and services, which may rely for their justification not solely on outcome measurements but also on value judgments and favorable impressions.

Maternity care financing in the United States differs from that in the other countries in two important respects. The first is that uniform national standards for maternity care have not been developed, and hence financial and medical providers are not monitored to ensure that pregnant women receive consistent and high-quality care. The second major difference is the failure of the United States to achieve universal coverage of the population in one or another system of health care financing.

The deficiencies in the U.S. maternity care system have been well documented. More than 20 percent of all pregnant women and an even greater proportion of minority women fail to receive early prenatal care.[39] Twenty-five percent of women of prime childbearing age are not protected by either public or private health insurance.[40] The cost of childbearing is formidable: In 1985, the medical expenses for pregnancy and delivery averaged $3,100 for a normal delivery and $4,800 for a cesarean section.[41] Almost half of practicing obstetricians will not see Medicaid patients.[42] The high cost that the United States pays for deficiencies in care rendered to pregnant women has also been well documented.[43] The high incidence of low birth weight, with its attendant expense and risks of mortality and lifelong disability, is an aspect of the problem that can most readily be measured.

Improved participation in prenatal care and improved pregnancy outcomes in the United States are unlikely until easily understood and readily available provider systems are established. In addition, society must remove all barriers, especially economic ones, to a full range of services, and must link prenatal care to comprehensive social and financial benefits that enable pregnant women and new mothers to protect their own well-being and to nurture their infants. In the absence of such measures, Americans who cherish the concept of family stability might well ponder the seeming indifference of our society to the aspirations of young couples attempting to fulfill the family's most basic role: to bear and nurture children.

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Delayed Prenatal Care and Place of First Visit: Differences by Health Insurance and Education

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Introduction and Methodology

The importance of beginning prenatal care during the first trimester of pregnancy is widely accepted in the fields of public health and obstetrics.[1] Indeed, one of the national health objectives set by the Public Health Service for the year 1990 is early care for at least 90 percent of women in each U.S. county and in each racial and ethnic subgroup.[2] However, the proportion of women obtaining early prenatal care remained essentially the same between 1980 and 1983, and increased at a slower rate in the latter half of the 1970s than in the early 1970s.[3] Furthermore, the proportion of women whose prenatal care begins early in pregnancy continues to vary strikingly by their race and educational attainment; those at greatest risk of an adverse pregnancy outcome are the least likely to begin care early.[4] The purpose of this article is to examine, for a national sample of women, the differentials in the use of prenatal care that are associated with age, race, education and health insurance coverage. The analysis focuses specifically on delayed prenatal care and on the place of the first prenatal visit.

The data were collected as part of the National Survey of Family Growth (NSFG), conducted periodically by the National Center for Health Statistics. The NSFG is a probability household survey of women aged 15–44 in the civilian noninstitutionalized population. For Cycle III, 7,969 women were interviewed between August 1982 and February 1983; black women and teenagers were oversampled to ensure sufficient numbers for analysis, and women living on college campuses were included in a supplementary sample.[5]

Table 1. Percentage distribution of U.S. women aged 15–44 whose most recent live birth occurred between 1979 and 1983, by age-group and health insurance status at time of delivery and education at time of survey, according to race; 1982 NSFG

Age-group, insurance and education	White		Black	
	%	(S.E.)	%	(S.E.)
15–19	(N=125)	na	(N=150)	na
No insurance	21.7	(5.4)	13.9	(3.2)
Public assistance	48.8	(6.5)	72.5	(4.1)
Private insurance	29.5	(5.0)	13.6	(3.9)
<12 yrs.' ed.	52.9	(5.6)	60.3	(4.4)
≥12 yrs.' ed.	47.1	(5.6)	39.7	(4.4)
20–44	(N=754)	na	(N=624)	na
No insurance	13.3	(1.7)	11.9	(1.7)
Public assistance	11.5	(1.2)	40.5	(3.3)
Private insurance	75.2	(2.1)	47.6	(2.7)
<12 yrs.' ed.	18.8	(2.6)	24.1	(1.9)
12 yrs.' ed.	39.9	(2.5)	42.6	(2.5)
≥13 yrs.' ed.	41.3	(3.2)	33.3	(2.6)
Total	100.0	na	100.0	na

Note: In this and subsequent tables, S.E. = standard error; na = not applicable.

In addition to data on the women's reproductive and family planning histories, the NSFG collected information on prenatal care and method of payment at delivery for women who had had a live birth in the period beginning January 1979. The analysis that follows is based on data related to the most recent live birth among respondents who reported at least one singleton live birth between January 1979 and February 1983.

The overall rate of nonresponse to the survey was 21 percent, with no variation by race and little variation by age and marital status. Nonresponse to individual questions about the variables used in this analysis was generally very low (less than three percent). Of the women whose most recent live birth had occurred between 1979 and 1983, three percent of whites and four percent of blacks were excluded from the analysis either because of missing values for one or more of the variables or because the reported source of payment at delivery was one of several miscellaneous categories (e.g., military, professional courtesy) for which the numbers were small.

Race, age, education and health insurance status are the independent variables in the analysis. Age is defined as of the time of delivery and is divided into two categories: 15–19 and 20–44. Educational attainment is measured as of the time of interview. For teenagers two categories are used: fewer than 12 years and 12 or more years of schooling; for adults the latter category is further subdivided into 12 years and 13 or more years of education. It is possible that educational attainment increased between the date of delivery and the interview; however, we believe that any increases were minor and would not affect our results, because broad educational categories have been used; educational attainment usually does not change much among adults; and teenage mothers are far less likely to eventually complete high school than are women who delay childbearing.[6] Method of payment for the delivery is taken as an indicator of health insurance status, because the NSFG provides no information about women's health insurance coverage during pregnancy. The NSFG questionnaire included a detailed list of ways in which the medical bills for delivery can be paid. The methods of payment are categorized in this analysis as private health insurance; public assistance, including Medicaid and state and local government assistance; and no insurance (self-payment or family payment). Although the means used to pay for medical care may change during the course of pregnancy, there is probably a high correlation between the payment mechanism used at delivery and the mechanism that is used to cover prenatal care.

The two dependent variables in the

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analysis are delayed prenatal care and place of first visit for prenatal care. Delayed care is defined as care that begins after three months of pregnancy; the term includes no care at all.* Place of first visit for prenatal care is dichotomized into clinic and private settings. The former category comprises hospital clinics (attended by 40 percent of those who used clinics for their first prenatal visit), public health department clinics (21 percent), family planning clinics (21 percent), community health centers (13 percent) and other facilities (five percent), including military health service clinics and student health service clinics. Private settings include doctors' offices (used by 76 percent of private patients) and group practices and private clinics (24 percent).

All percentages in the text and tables are based on numbers weighted to U.S. national totals. Standard errors shown in each table have been calculated using Taylor series linearization and the computer program SESUDAAN.[7] This procedure takes into account the complex design of the NSFG. The analysis focuses primarily on adults; although data for teenagers are presented in the tables, those results are not highlighted because of their relatively large standard errors.

Results

- *Health insurance coverage.* As Table 1 shows, the kind of health insurance coverage women have for delivery varies widely by their age and race. Teenagers are more likely to use public funds to pay for their deliveries than to use any other means, and black teenagers are even more likely to do so (73 percent, as compared with 49 percent for whites). White teenagers are more likely than black adolescents to have private insurance coverage for their deliveries. Among adults, private health insurance is the primary means of payment, but it is used much more often by white women (75 percent) than by black women (48 percent). Public assistance is used three and one-half times as often by black as by white adults (41 percent vs. 12 percent). Similar proportions of white and black adults (about 13 percent) have no insurance coverage to pay for their deliveries.

Health insurance coverage at delivery is strongly associated with educational attainment at interview, especially among adults (see Table 2). As level of education increases from fewer than 12 years to 13 or more years, the proportion of adults who are covered by private insurance increases from 48 percent to 87 percent among whites and from 21 percent to 64 percent among blacks. Black teenagers with fewer than 12 years of education are less likely to have private insurance at delivery than are those with more schooling; but among white teenagers, there is little difference by education.

An analysis of prenatal care that cross-classifies insurance and education is not possible because of the small numbers involved. Therefore, the effects of the two variables on prenatal care are presented separately. Comparison of the results of these separate analyses is of interest because many previous studies, based on birth certificate data, examined only educational attainment.

Table 2. Percentage of women covered by private health insurance at time of delivery, by age-group at time of delivery and education at time of survey, according to race

Age-group and education	White		Black	
	%	(S.E.)	%	(S.E.)
15–19				
<12 yrs.' ed.	31.0	(6.8)	8.0	(3.3)
≥12 yrs.' ed.	27.8	(8.3)	22.0	(7.8)
20–44				
<12 yrs.' ed.	48.3	(4.9)	21.4	(5.0)
12 yrs.' ed.	75.4	(3.9)	49.7	(2.9)
≥13 yrs.' ed.	87.3	(1.6)	64.0	(4.6)

Table 3. Percentage of women going to a clinic for their first prenatal visit, by age-group and health insurance status at time of delivery and education at time of survey, according to race

Age-group, insurance and education	White		Black	
	%	(S.E.)	%	(S.E.)
15–44	**17.3**	**(1.6)**	**48.3**	**(2.6)**
15–19	**31.9**	**(5.5)**	**61.9**	**(6.4)**
Public assistance or no insurance	35.3	(7.5)	66.4	(6.9)
Private insurance	23.8	(7.4)	34.3	(10.6)
<12 yrs.' ed.	37.5	(5.6)	63.9	(7.6)
≥12 yrs.' ed.	25.7	(10.0)	58.8	(9.3)
20–44	**15.7**	**(1.6)**	**44.1**	**(2.5)**
No insurance	24.8	(5.6)	58.3	(5.7)
Public assistance	61.0	(6.7)	64.6	(4.0)
Private insurance	7.3	(1.4)	23.6	(3.2)
<12 yrs.' ed.	41.9	(4.5)	56.3	(4.3)
12 yrs.' ed.	11.1	(2.3)	49.4	(3.6)
≥13 yrs.' ed.	8.7	(2.2)	28.9	(4.4)

Note: Table excludes women with no prenatal care.

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*Most national estimates of prenatal care utilization have been derived from data reported on birth certificates in response to the question, "Month of pregnancy prenatal care began (first, second, etc)." For such estimates, delayed care is usually defined to include those women who begin care after the first three months of pregnancy or who receive no care at all. Although the same definition is used in this article, the estimates of women with delayed care presented here are lower than those based on the vital statistics data. The NSFG question regarding the onset of prenatal care was, "How many months pregnant were you when you first visited a doctor or clinic for prenatal care?" The data were coded in completed months of pregnancy; thus, the response categories were 0–8. If a woman responded that she was in her third month of pregnancy, the response was coded as two (completed) months. Consequently, the definition of delayed care based on the NSFG depends upon how the data on start of care are combined—after three completed months or after two completed months. As shown in the table to the right, the month-by-month distribution of women exhibits a more natural break in the data between months three and four than between months two and three, particularly among black women. We have therefore defined delayed care using the three-month break. This definition is more likely to identify women who unquestionably begin care after the first trimester. It should be noted that for both white and black women, the birth certificate–based estimate of delayed care is between the two NSFG-based estimates (see table). This is also the case when the data are examined by age and education (not shown).

Month care began	% of women	
	White	Black
Completed month		
0	4.7	3.0
1	31.6	23.5
2	33.5	27.3
3	18.7	27.6
4	4.8	8.5
5	2.2	6.1
6	1.8	1.7
7	1.0	0.5
8	0.3	0.0
No care	1.3	1.8
NSFG		
After 3 months*	11.4	18.6
After 2 months*	30.1	46.2
Birth certificate		
After 3rd month*	20.6	37.3

*Includes no care.

There are several possible explanations why the two different data sources produce different estimates: (1) The birth certificate item on prenatal care refers to the month during which care begins rather than to the completed month, as in the NSFG. (2) The birth certificate data are collected at the time of the delivery, whereas the NSFG data may refer to a birth as many as four years earlier, thereby creating a potential recall problem for some mothers. (3) The birth certificate data come from one of several possible sources (hospital record, prenatal care record or interview with the mother), whereas the NSFG data are based on the mother's response. If the mother has obtained prenatal care from more than one provider during her pregnancy, only the most recent provider is likely to appear on her medical record, thereby causing the record to understate how early in the pregnancy prenatal care began. This explanation seems especially plausible because the differences between the birth certificate estimates and the NSFG estimates are larger for black women and for teenagers; these are the groups most likely to obtain prenatal care from a clinic, where continuity of care is less common than in a private setting.

Despite the differences between the estimates derived from the two data sets, both sources show the same kinds of differentials in onset of prenatal care among demographic and socioeconomic subgroups.

Table 4. Percentage of women with delayed prenatal care, by age-group and health insurance status at time of delivery and education at time of survey, according to race

Age-group, insurance and education	White		Black	
	%	(S.E.)	%	(S.E.)
15–44	**11.4**	**(1.5)**	**18.7**	**(1.8)**
15–19	**19.8**	**(5.0)**	**28.3**	**(5.1)**
Public assistance or no insurance	23.9	(6.3)	30.7	(5.9)
Private insurance	10.0	(4.4)	13.2	(6.0)
<12 yrs.' ed.	25.1	(6.5)	35.8	(8.3)
≥12 yrs.' ed.	13.9	(4.9)	17.0	(5.5)
20–44	**10.5**	**(1.5)**	**15.7**	**(1.5)**
No insurance	18.3	(5.6)	24.0	(7.3)
Public assistance	32.3	(5.7)	22.0	(2.3)
Private insurance	5.8	(1.2)	8.2	(2.1)
<12 yrs.' ed.	25.7	(4.0)	26.8	(3.4)
12 yrs.' ed.	9.3	(1.9)	14.9	(2.4)
≥13 yrs.' ed.	4.7	(1.4)	8.6	(2.6)

- *Place of first prenatal visit.* As may be seen in Table 3 (page 213), black women are much more likely than white women to receive their initial prenatal care in a clinic (48 percent compared with 17 percent). The differential persists regardless of age or education. Among teenagers, the proportion of blacks using a clinic is nearly twice the proportion of whites, while among adults, the black-white ratio is almost three to one.

White adults who have not completed high school are much more likely than white high school graduates to go to a clinic for their initial care (42 percent as against 11 percent), but there is little difference in levels of clinic use between high school graduates and women who have completed additional education (11 percent and nine percent, respectively). Among black adults, those with 13 or more years of education are much less likely to go to a clinic than are women in the two lower education groups (29 percent compared with 49–56 percent).

Clinic use by white adults is greatest among those who rely on public programs to pay for their deliveries (61 percent), is intermediate among those who have no health insurance (25 percent) and is lowest among those who have private insurance (seven percent). Among black adults, approximately 60 percent of those who either have no insurance or rely on public funds attend a clinic for their first prenatal visit, compared with 24 percent of those covered by private insurance. Only among public assistance recipients is there little difference in clinic use between black and white adults.

- *Delayed prenatal care.* Nineteen percent of black women compared with 11 percent of white women begin prenatal care after the first trimester (see Table 4). (These proportions include the two percent of black women and one percent of white women who do not obtain any prenatal care at all.) Teenagers are nearly twice as likely as adults to receive delayed care (20 percent vs. 11 percent among whites and 28 percent vs. 16 percent among blacks). Regardless of race, adults with private insurance or with more than a high school education are the least likely to get delayed care (5–9 percent). Among white adults, public assistance recipients are more likely than women covered by private insurance or those with no insurance to receive delayed care. Among black adults, those who have no insurance and those who rely on public assistance are equally likely to receive delayed care.

Women whose first visit for prenatal care occurs in a clinic as opposed to a private facility are more likely to have received delayed care, as Table 5 shows. Overall, about 25 percent of white and black women who attend a clinic begin care after the first trimester, compared with about seven percent of those who attend a private facility. In the case of adults, delayed care is most common among clinic users who rely on public assistance (31 percent) or who have less than a high school education (also 31 percent). Those least likely to obtain delayed care are adults who go to a private facility and who pay with private insurance (five percent) or have more than a high school education (about three percent).

Table 5. Percentage of women with delayed prenatal care, by age-group and health insurance status at time of delivery and education at time of survey, according to race and place of first visit

Age-group, insurance and education	White				Black			
	Clinic		Private facility		Clinic		Private facility	
	%	(S.E.)	%	(S.E.)	%	(S.E.)	%	(S.E.)
15–44	**26.2**	**(4.7)**	**7.0**	**(1.3)**	**23.1**	**(2.8)**	**11.7**	**(3.4)**
15–19	32.0	(12.9)	13.8	(4.3)	26.3	(3.1)	25.0	(12.8)
20–44	24.8	(5.0)	6.3	(1.2)	21.7	(4.0)	8.9	(2.3)
No insurance	17.4	(10.0)	12.3	(4.7)	29.2	(14.1)	10.4	(5.2)
Public assistance	36.2	(9.1)	22.1	(8.2)	21.4	(3.7)	18.4	(5.3)
Private insurance	14.9	(8.9)	4.5	(1.0)	17.8	(5.6)	5.0	(1.5)
<12 yrs.' ed.	31.9	(9.3)	15.0	(3.9)	29.5	(6.0)	19.9	(7.3)
12 yrs.' ed.	17.8	(8.8)	7.5	(1.9)	17.1	(3.6)	9.2	(2.4)
≥13 yrs.' ed.	18.6	(8.7)	2.8	(1.1)	20.6	(8.7)	3.7	(1.8)

Note: Table excludes women with no prenatal care.

Discussion

The data presented in this article show large racial differences in health insurance coverage at delivery, with whites much more likely than blacks to have private insurance. Further, both white and black women of lower socioeconomic status (as indicated by either insurance coverage or education) are more likely to begin prenatal care after the first trimester and are more likely to use a clinic for that care. In addition, regardless of socioeconomic status, black women are more likely than white women to use a clinic for their first prenatal care visit. Only among adult public assistance recipients is there little racial difference in clinic use. Although black women are also more likely than white women to receive delayed care, racial differences in the proportion with delayed care are eliminated among women of higher socioeconomic status who use a private facility. It is noteworthy that more than 95 percent of both white and black adults who go to a private physician and who have private insurance or a higher level of education receive care within the first three months of pregnancy.

The NSFG data, supporting previous findings,[8] also indicate that women who receive care in a private facility are unlikely to be Medicaid patients: Only five percent of women who go to a private facility for their initial prenatal care pay for the delivery with Medicaid funds, compared with 30 percent of women who go to a clinic. (Data not shown.) Among the reasons that have been cited for the low proportions of Medicaid patients seen by private obstetricians are low Medicaid reimbursement rates, long delays before reimbursements are made, and burdensome red tape in general.[9]

Although a woman may understand the importance of obtaining prenatal care early in pregnancy, whether she actually obtains

(Continued on page 234)

DIGEST

Among Blacks, Causes of High Rates of Early Delivery and Low Birth Weight Remain Elusive

Rates of low birth weight and of preterm delivery have been higher among blacks than among whites for many years, but the reasons for these differentials have remained obscure. The authors of two recently published studies have attempted to shed some light on this problem. One study, an analysis of low birth weight based on national birth certificate data from 1973 and 1983, concludes that racial variations in birth weight persist even among women who, according to such traditional markers as education and marital status, appear to be at low risk.[1] The other investigation, which focused on a group of women who gave birth in a Boston hospital, concludes that most racial differences in rates of prematurity can be attributed to the women's hematocrit levels and to nonmedical factors such as education, marital status and income.[2] A commentator suggests that even though the findings of the second study are not supported by the medical literature, both pieces of research demonstrate "the special vulnerability of black women to preterm labor and delivery."[3]

The first study examines the effects over time of changes in the distribution of maternal risk factors on very low and moderately low birth weight. Data were taken from birth certificates in the United States from 1973 and 1983. Complete 1983 data were available for 46 states, and a 50 percent random sample of birth certificates was used for the remaining four states and for the District of Columbia. However, because only 28 states* recorded complete information on maternal race, age, parity, marital status and education on birth certificates in both 1973 and 1983, trend analyses were limited to these states, which accounted for about 40 percent of all births in each year. The 1973 data included information on all births in five states and a 50 percent random sample of births in the other 23 states. The investigators excluded births among women who were of races other than white or black. The investigators used 1983 data from all the states to estimate multinomial logistic models for rates of very low (under 1,500 g) and moderately low (1,500–2,500 g) birth weight among the infants of women at every combination of race, age, parity, education and marital status. Standardized rates were then derived from the logistic models.

Overall, the birth certificate data show that blacks were 2.4 times more likely than whites to have a low-birth-weight baby (rates of 114 per 1,000 and 47 per 1,000, respectively); black infants were 3.0 times more likely to be very underweight at birth (22 per 1,000 compared with seven per 1,000) and 2.3 times more likely to be moderately underweight (93 per 1,000 compared with 40 per 1,000).

Standardization indicates that rates of low birth weight fell as maternal education increased: White women who had not graduated from high school were half again as likely to have a very low birth weight baby and more than twice as likely to have a moderately low birth weight baby as were those who had graduated from college. Although black women showed sizable differences by education in their likelihood of having a moderately low birth weight baby, there was little such difference in the risk of very low birth weight.

In both racial groups, married women were less likely than unmarried women to give birth to an underweight infant. For whites, rates of very low birth weight were 6.9 per 1,000 live births among married women and 11.1 per 1,000 among single women; respective rates of moderately low birth weight were 38.2 and 57.2 per 1,000. For blacks, rates of very low birth weight among the married and the unmarried were 17.5 and 23.6, and rates of moderately low birth weight in these groups were 72.9 and 97.4 per 1,000, respectively. Among both blacks and whites, women aged 30 and older having a first birth were at greatest risk of having a very low birth weight baby (28.4 and 11.0 per 1,000, respectively), while 18–19-year-olds were at lowest risk (14.9 and 8.2 per 1,000, respectively).

The investigators considered as being at low risk married women 20–29 years of age who were having a first birth; high-risk women were defined as unmarried teenagers, women aged 30 and older who were having a first birth and high-parity women with fewer than 12 years of education. Overall, rates of very low and moderately low birth weight among low-risk white women were 5.0 and 26.8, while among high-risk whites the rates were 15.1 and 74.3, respectively. Low-risk black women had 17.2 very low and 60.0 moderately low birth weight babies per 1,000, while high-risk black women had rates of 25.1 and 117.2 per 1,000, respectively. Blacks were far more likely than whites to be in the high-risk group (21 percent compared with four percent); whites were more concentrated in the low-risk group (31 percent compared with 12 percent of blacks).

The investigators then calculated the degree to which rates of low birth weight had varied between 1973 and 1983 because of changes in the characteristics of the mothers.† In the 28 states for which trend data were available, the actual rate of very low birth weight fell by three percent among whites, but rose by 13 percent among blacks. Rates of moderately low birth weight dropped by 16 percent among whites and by six percent among blacks. Overall, the incidence of low birth weight among whites declined by 14 percent over the 10-year period, but decreased by only three percent among blacks. According to the researchers, changes over the 10-year period in maternal characteristics such as education, parity and age at birth would be expected to produce a three percent decrease in the rate of moderately underweight births among whites and no change among blacks. Such changes would also be expected to leave rates of very low birth weight unchanged among whites and to raise them by four percent among blacks.

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*Arizona, Delaware, Hawaii, Illinois, Iowa, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, North Carolina, North Dakota, Oklahoma, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, West Virginia, Wisconsin and Wyoming.

†Standardized rates derived from the logistic models were applied to the 28-state data from 1973 and 1983 to produce expected rates of very low and moderately low birth weight. The degree of change over that period represents the net effect on birth weight of changes in risk factors. The researchers then divided the observed rates by the corresponding expected rates to create standardized ratios; changes in these ratios over time provide estimates of the changes in rates, holding the distribution of maternal characteristics constant.

After comparing the actual and expected changes in rates, the researchers conclude that about 15 percent of the decrease in moderately low birth weight among whites could be attributed to changes in maternal characteristics, as could about 35 percent of the change in the rate of very low birth weight among blacks. After standardization, the rate of very low birth weight among blacks rose by eight percent, while their standardized rate of moderately low birth weight declined by six percent; among whites, standardization decreased the rate of moderately low birth weight by 13 percent, but made no impact on the rate of very low birth weight.

The results, according to the investigators, "show that risk factors long associated with low birth weight exert their effects on the occurrence of both very low . . . and moderately low birth weight, but to different degrees. Education had stronger effects on moderately low birth weight, whereas [teenage] childbearing . . . and high parity had greater effects on very low birth weight." The fact that blacks were more heavily concentrated in the high-risk groups did not appear to be primarily responsible for their high rates of low birth weight: Even among women classified as low-risk, blacks were more likely than whites to have low-birth-weight babies.

The investigators conclude that "the persistence of racial and socioeconomic differences in birth weight and the lack of improvement in the incidence of very low birth weight pose serious challenges to biomedical and public health efforts." They suggest that eliminating those differentials may prove more complex than has previously been thought, requiring not just more knowledge about the effects of prenatal care but also a better basic understanding of the physiological mechanisms behind fetal growth and premature delivery.

The second study examines how a mother's medical and socioeconomic risk factors contribute to her infant's prematurity. A total of 14,458 women who delivered at Boston Hospital for Women between August 1977 and March 1980 were asked to participate in the study. The women were interviewed, and their medical records were examined. Data were collected for 12,718 women in all. Women whose insurance status was unknown and those whose labor was induced or who had had a cesarean section before the 37th week of gestation were excluded from the analysis. Thus, the final group consisted of 8,903 women—7,538 whites and 1,365 blacks. Of these, 496 had given birth before 37 weeks of gestation.

For the black women, the chance (or the odds ratio) of a premature birth following the spontaneous onset of labor was 1.94 times higher than the chance for whites: A total of 9.2 percent of the black women gave birth prematurely, compared with 4.9 percent of the white women. In general, the black women giving birth were far more likely than the whites to be anemic or underweight, to have urinary tract infections and to be young, single, less educated or receiving welfare—all characteristics that are risk factors for prematurity. In all, 47 percent of the white women delivering at the hospital fell into none of these risk groups, compared with only 13 percent of the black women.

The investigators examined the medical conditions known to be associated with prematurity, by comparing the actual odds ratio of premature birth to the ratio observed after the effects of each medical risk factor had been controlled for. They discovered that hematocrit level was the only medical factor having a substantial impact on reducing the risk of prematurity among blacks: When this factor was controlled for, black women were only 1.38 times more likely than whites to have a premature birth, representing a 60 percent reduction in the odds ratio for prematurity. Furthermore, a multiple regression analysis that controlled for all factors but hematocrit level produced an odds ratio for prematurity of 1.88, nearly the same as the actual odds ratio (1.94).

Four nonmedical risk factors—being younger than 20 years of age at childbirth, being single, receiving public assistance and never having graduated from high school—were far more common among the black patients than among the whites. For example, 89 percent of the white women in the study were in none of these risk categories, compared with only 32 percent of the black women, and the black women were also more likely to have several characteristics that put them at high risk. Among women in only one risk category, rates of prematurity were slightly elevated (7.0 percent, compared with 4.6 percent among those in none of these categories); for those with two or more such characteristics, the rate of prematurity was 11.2 percent.

When the researchers examined each nonmedical risk factor independently of the other three, they discovered that low maternal education was responsible for 65 percent of the excess risk of prematurity (for an odds ratio of 1.33); being single accounted for 53 percent of the excess risk (for an odds ratio of 1.44); and receipt of public assistance, for 51 percent (an odds ratio of 1.46). Only being a teenager had a relatively slight impact on the risk of prematurity, explaining 27 percent of the excess and yielding an odds ratio of 1.69. (The proportions of risk attributed to these factors add to more than 100 percent because all of the factors are highly intercorrelated.) When the investigators performed a multiple regression analysis using race and those four factors as the independent variables, they found that controlling for the variables reduced the odds ratio for prematurity among blacks by 77 percent, to 1.22.

The investigators showed that many medical risk factors (low hematocrit level, low ponderal index, urinary tract infection, experience of two or more induced abortions, exposure to DES, diabetes, cervical incompetence, smoking and fetal malformation) were each significantly related to the number of nonmedical risk factors present. However, when hematocrit level was excluded, the remaining medical factors explained only about 10 percent of the increased risk of prematurity associated with the nonmedical factors. Controlling simultaneously for hematocrit level, race and the nonmedical risk factors reduced the odds ratio of prematurity to 1.03. The investigators concluded that, taken together, hematocrit and the economic, demographic and behavioral variables, or the other factors related to them, "account for essentially all of the increased risk of premature births among blacks."

The author of a commentary accompanying the two studies points out that the conclusion reached in the research on prematurity "is not generally supported by the literature and can probably be attributed to the small size and special characteristics of the population studied." The black women who participated in the study may have chosen to deliver at the Boston Hospital for Women because of the very risk factors that were being studied. But as the commentator notes, both studies show that "the special vulnerability of black women to preterm labor and delivery is related to a variety of biologic, social, economic, behavioral and environmental factors. Further definition of these diverse influences, as well as a better understanding of their interrelations, is needed to improve current interventions through reproductive counseling and prenatal care."

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Larger Share of Maternal Deaths for Mass. Women With Poor Prenatal Care

The maternal mortality rate in Massachusetts declined dramatically from about 50 deaths per 100,000 live births in the mid-1950s to 10 per 100,000 by 1985. The two main contributing factors leading to this decline were the legalization of abortion and improvements in medical care. As the rate fell, the leading causes of maternal mortality also changed—from infection, cardiac disease, hypertension and hemorrhage to trauma and pulmonary embolism. Despite the decline in mortality, in recent years an increasing proportion of maternal deaths have occurred among women who received inadequate or no prenatal care. These are the major conclusions of a review of all maternal deaths that occurred in the state between 1954 and 1985.[1]

The review was carried out by the maternal mortality committee of the Massachusetts Medical Society, under Dr. John F. Jewett. The investigators determined that from one-third to one-half of all the deaths occurring in that period were preventable.

The researchers drew on listings of 886 maternal deaths known to have taken place in Massachusetts between 1954 and 1985. These reports provided information on a woman's age, race and parity; the type of prenatal care she had received; the type of delivery; the causes of death; and the city and hospital in which the death had occurred. Any death that occurred during pregnancy or within 90 days postpartum was considered to be a maternal death; and the death was deemed directly attributable to pregnancy or childbirth if it resulted from "obstetrical complications of pregnancy, labor or the puerperium, from interventions, omissions or incorrect treatment on the part of the physician, or from a chain of events resulting from any of these." Indirect causes involved diseases that the women had had before the pregnancy, or that were exacerbated by the pregnancy. Mortality rates were computed for four-year intervals.

Findings

Massachusetts' maternal mortality rate fell from 50 deaths per 100,000 live births in 1954–1957 to 29 per 100,000 in 1966–1969 and to 10 deaths per 100,000 live births in 1982–1985. In the course of the 32-year period. the proportion of maternal deaths occurring in teaching hospitals rose from 33 percent to 50 percent, an increase that reflects the regionalization of perinatal care in the state, according to the investigators. Under this system, pregnant women are increasingly being transferred from community hospitals to major teaching centers if they become seriously ill.

Analysis shows that over the last 10 years of the study period, the average age of women dying as a result of pregnancy or childbirth was between 26 and 30. In this same period, three-quarters of all deaths occurred among white women, and 38–70 percent took place among women having their first child. The maternal mortality rate was about 10 deaths per 100,000 live births among white women in 1985, compared with 35 per 100,000 among nonwhites.

There appears to have been an increase over the past 10 years in the proportion of Massachusetts women dying as a result of pregnancy or childbirth who received no or inadequate prenatal care. In 1976–1979, 17 percent of women who died had not received adequate prenatal care; by 1982–1985, this proportion had increased to 55 percent. In the latter part of the study period, 50 percent of nonwhite women dying during pregnancy or childbirth, compared with only 15 percent of whites, had received little or no prenatal care. In addition, the proportion of women dying who were clinic patients (rather than the patients of a private doctor) rose from 25 percent in 1954–1957 to 55 percent by 1982–1985.

The investigators believe that from one-third to one-half of all the maternal deaths were preventable. In terms of the deaths occurring between 1976 and 1985 that could have been prevented, the responsibility for 44 percent of these was assigned to the physician or the hospital; in 25 percent of cases, the responsibility could not be assigned; and in the remaining 31 percent, the responsibility was assigned to the patient in combination with the doctor or the hospital.

Causes

In 1954–1957, the leading causes of maternal death in Massachusetts were infection, heart disease, hypertension and hemorrhage. These four causes accounted for about 46 percent of all deaths in that period. By 1982–1985, this pattern had changed radically. Trauma (suicide, accidents and homicide) accounted for 19 percent of all maternal deaths, and was by far the leading cause. This was followed by pulmonary embolus and amniotic-fluid embolus (each accounting for 12 percent of deaths). The investigators believe that the decline in deaths from infection is probably due to fewer septic abortions, fewer complications of cesarean sections and fewer gastrointestinal complications. They state that overall, the "legalization of abortion in the early 1970s, combined with improved medical care, had an important role in reducing maternal mortality in Massachusetts."

The committee concludes that despite the impressive decline in Massachusetts' maternal mortality rate over the past 30 years or so, the "rapid increase in the number of maternal deaths among clinic patients with little or no antenatal care is disconcerting." The members find it unlikely that Massachusetts will achieve the surgeon general's goal of a maternal mortality rate of five per 100,000 live births in all counties of the United States and among all population subgroups by the year 1990. They recommend measures to improve access to prenatal care, to improve medical care for nonwhite women who become pregnant and to focus more attention on the risks of postpartum depression among women, to avert possible suicides. They also note that since car accidents accounted for a number of the maternal deaths that were investigated, research should be carried out into the efficacy of seat belts for pregnant women.

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Hormonal Implant Found Effective over Long Periods, Does Not Affect Users' Future Fertility

New long-term studies of NORPLANT®, the hormonal contraceptive implant, demonstrate that the method is highly effective over a long period of time[1] and does not appear to compromise a woman's future fertility.[2] Furthermore, NORPLANT users generally appear satisfied with the method: One study shows that when women have the implants removed after about five years of use, a substantial minority choose to have another set inserted.[3] However, another study reveals that almost half of the women who abandon the method do so because of menstrual problems. Investigators caution that providers should keep in close contact with NORPLANT users, since removal of the implants requires some expertise and a few women in the clinical trials have been lost to follow-up.

Research is now underway on two different configurations of NORPLANT. The original version of the NORPLANT system consists of six small capsules placed under the skin of a woman's upper arm. The levonorgestrel contained in the capsules diffuses gradually into the user's circulation and provides continual contraceptive protection for five years or longer. The six-capsule version has been used by nearly 200,000 women in 30 countries, and its developers hope to submit it to the U.S. Food and Drug Administration (FDA) for approval in 1988.[4]

One recent study undertaken to determine the long-term side effects of the six-capsule NORPLANT system was begun in Egypt in September 1980. A total of 250 NORPLANT users were recruited from among patients at the Assiut University Hospital's family planning clinic.[5] During their first year of implant use, the women were asked to come to the clinic for a checkup every three months; thereafter, they were to return at the end of each year, and at other times only if they had a problem. After five years, the women who had not returned were contacted by mail, and home visits were made to those who did not respond to the letter.

Fifty-seven percent of the original study participants (142 women) had used the implants for five full years; 41 percent had had them removed before then, and two percent (five women) were lost to follow-up. While the average age of the entire group at admission to the study was 32.5 years, those who used NORPLANT for five years were somewhat older (33.6 years of age, on average) at the start of the study. The long-term users also tended to have had more children (6.6, compared with 5.9 for the entire group) and to have received less schooling (1.9 years of education, compared with 2.8). Of the 142 long-term users, 74 percent reported having had regular cycles during the last three months of NORPLANT use, 15 percent experienced complete or nearly complete amenorrhea over that period, and 11 percent reported abnormal bleeding or spotting.

Four women reported pregnancies during the course of the study, for a net five-year pregnancy rate of 1.6 per 100 women. The investigators observe that "there was a good possibility that three [pregnancies] had started before the placement of the implants," as all three were discovered during the early months of implant use, when hormone levels are at their highest. The only other pregnancy occurred in the 52nd month of NORPLANT use.

The five-year net continuation rate was 58.6 per 100 women. The most important reason for termination was prolonged, heavy or irregular menstrual bleeding, reported by 44 women and accounting for 17.7 terminations per 100 women over the five-year period. Eighty-two percent of the discontinuations related to bleeding occurred during the first two years of NORPLANT use. Four removals were linked to amenorrhea lasting longer than three months (for a five-year termination rate of 1.6 per 100 women), and 17 discontinuations (6.8 per 100 women) were for other medical reasons, such as headaches, pain at the site of implantation, hypertension, weakness, nervousness, loss of weight, breast hypertrophy, shortness of breath and benign ovarian cysts. Eleven women had their implants removed because they wanted to become pregnant (a rate of 4.4 per 100 women), and 23 (9.3 per 100) did so for other personal reasons (mostly because their husbands would be absent for a long time or had died).

Among the women who used NORPLANT for the full five years, 96 percent said that they were satisfied with the implants. Sixty-two percent of the long-term users decided not to practice contraception after removal of the implants, mostly because they believed they were close to menopause. Of those who did adopt a method of family planning after having their implants removed, 37 percent adopted the IUD, 33 percent had a new set of implants inserted, 17 percent chose the pill and 13 percent chose either injectables or barrier methods.

The investigators report that "since three of the four pregnancies in [the] study occurred, most probably, before the placement of the implants, we are now insisting on insertion of the implants during menstruation." Also, because five of the 250 women were lost to follow-up, the researchers urge that family planning programs offering NORPLANT improve their systems for maintaining users' addresses and consider developing alternative methods for recalling users when it is time to remove their implants.

In other recently published research, a group of investigators examined the experiences of 376 Chilean women who had participated in clinical trials of NORPLANT.[6] All had been enrolled between October 1974 and May 1979; at the time of enrollment, they were 19–37 years of age, healthy, fertile and either menstruating regularly or experiencing their first menses since a recent birth or abortion. The original protocol for one of those trials stipulated that the implants be removed after 15 months of use, but the protocol was changed partway through the study. By that point, 65 women had either stopped using NORPLANT or had had new implants inserted. The remaining women in this trial were permitted to keep the implants in place for up to eight years if they so chose. All women who were under age 40 when their implants were removed were offered the chance to receive a new set. During the first three years of use, women were asked to visit the clinic for checkups once every three months; afterwards, they were asked to return every six months. Those who did not do so were contacted by mail or phone, and those who did not respond were visited at home.

Of the 376 women who had used NORPLANT for any duration, 110 chose to continue with new implants after the first set was removed. Forty-three of the 65 women who had been required to have the implants removed after 15 months received new ones. Among the 211 who could elect to keep NORPLANT for as long as eight years, 67 requested a second insertion after removal of the first set of capsules. On average, when the first and second periods of use are combined, the women used NORPLANT for a total of 8–10 years.

During the women's first segment of NORPLANT use, there were 19 pregnancies in the course of 18,530 woman-months of use, for a Pearl pregnancy rate of 1.2 pregnancies per year. Eleven of the 19 pregnancies occurred after five years of NORPLANT use; thus, the Pearl index for the first five years of use was 0.63 pregnancies per year. No pregnancies were observed during the second segment of NORPLANT use (representing over 4,194 woman-months).

Bleeding problems were the single most frequently cited medical reason for terminating use of the method—23 women, representing six percent of all initial users, reported such side effects. The 19 women who became pregnant accounted for five percent of those who discontinued use. An additional 17 women cited headaches or nervousness, and six had ovarian cysts diagnosed. The investigators note that transient ovarian cysts have been reported previously among women using progestin-only contraception, and that such cysts should be removed only if they prove persistent and painful. Two women died while they were using NORPLANT, one during gallbladder surgery and another as the result of intracranial hemorrhage. According to the investigators, neither of these deaths was likely to have been related to the implants. Gallbladder problems requiring surgery are common among Chileans; in the case of the intracranial hemorrhage, the woman had been under treatment for headaches before she began using NORPLANT.

According to the researchers, the fact that there were no pregnancies among the women who undertook a second successive period of NORPLANT use suggests that "long-term treatment with continuous levels of the steroid may enhance the protective effect of the method." However, they concede that this finding may also be traced to the fact that the women who used the method for two segments were older and possibly less fertile than those who participated in only one segment.

Rates of discontinuation for bleeding problems declined among long-term users, in part because the frequency and severity of bleeding abnormalities declined as the duration of implant use increased (and, presumably, as levels of circulating hormones fell). In addition, such discontinuations were infrequent among women who chose to begin a second segment of implant use, probably because they had few major problems during their first period and were satisfied with the method.

Finally, another study looked at a subset of 90 women from the Chilean study. These were women who had been using NORPLANT implants but who had discontinued use in order to become pregnant.[7] All were healthy and fertile before beginning to use the method, and none had experienced any problem that might have compromised fertility. A control group was composed of 44 similar women who had stopped using a Copper T IUD in order to become pregnant. The former NORPLANT users were approximately 30 years of age, on average, and had used the implants for 1–8 years; the former IUD users were 28 years of age, on average, and had used the Copper T for 1–5 years.

Seven of the former NORPLANT users apparently changed their minds about becoming pregnant and began practicing contraception again shortly after ceasing use of NORPLANT; another two women separated from their husbands. Three women were lost to follow-up. In addition, in three instances, male infertility was diagnosed after a couple tried for two years to become pregnant. The cumulative life-table pregnancy rate was 49 percent after three months, 73 percent after six months, and 86 percent after one year.

Among the former IUD users, three women changed their minds about having another child and resumed contraceptive use, and another three were lost to follow-up. The cumulative life-table pregnancy rate among the women who had used IUDs was 70 percent after three months, 84 percent after six months and 89 percent after one year. Thus, subsequent pregnancy rates among former IUD users differed very little from those observed among former NORPLANT users. The investigators found no significant association between duration of NORPLANT use and the time needed for former users to become pregnant; however, they did find some correlation between age at the time of implant removal and the length of time needed to conceive. Also, birth outcomes among former implant users were no different from those observed among Chilean women in general. The investigators conclude that "long-term administration of levonorgestrel by means of NORPLANT . . . implants had no negative influence upon the return of fertility or the reproductive health of the population studied."

The six-capsule NORPLANT system is now approved for general use in the family planning programs of 10 countries.* Research has also been under way for several years on an alternative configuration called NORPLANT-2, which consists of a pair of levonorgestrel-containing rods. However, further research on NORPLANT-2 is currently being delayed because the material that forms the outer sheath of the rods is no longer being produced. As a result, scientists at The Population Council, which developed the NORPLANT system, are redesigning the rods, and no new supplies of NORPLANT-2 will be available until this process is completed.[8] The Population Council plans to submit data on the original six-capsule delivery system to the FDA for regulatory approval early in 1988.

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Social Background, Not Race, Conditions Black Premarital Childbearing

Are the high levels of premarital childbearing among U.S. black women the result of a single and dominant culture that attaches no stigma to illegitimacy? Or, as a recent Chicago-based study found, are they related rather to specific aspects of the culture of poverty that do not necessarily define the lives of all black women?[1] This is the central question posed in a recent analysis of data from the 1972 National Survey of Family Growth, carried out by two demographers from the University of Wisconsin.[2]

The Chicago study had classified black teenagers according to a large number of socioeconomic, cultural and environmental variables. The results of the classification demonstrated the existence of a small subset of "low-risk" teenage girls who lived in intact two-parent families in good residential neighborhoods and whose families had high educational aspirations for them. In addition, the parents of these adolescents exercised strict control over their dating, and none had sisters who had become teenage mothers. This group contrasted strongly with the far larger group of "high-risk" young women who were raised in an environment of severe economic, housing and familial deprivation. The investigators in the Chicago study found that the risk of premarital birth among young women living in a stable, traditionally middle-class environment was comparable to that found among a national sample of white teenagers. The risk among the disadvantaged group was about six times greater.

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* Colombia, the Dominican Republic, Ecuador, Finland, Indonesia, the People's Republic of China, Peru, Sweden, Thailand and Venezuela.

The researchers carrying out the current study were interested in learning whether the results of the Chicago study could be replicated at the national level, using NSFG data. However, the NSFG information did not permit the investigators to examine some of the variables crucial to the Chicago study, particularly, the quality of housing, the degree of parental supervision of leisure activities and whether or not the respondent came from a family in which a sister had given birth while a teenager. The NSFG data (for all women who had given birth before their first marriage) was, instead, analyzed in terms of the respondent's race, whether or not she had been raised by two natural parents, her parents' education, the region of the country she lived in and residence in a central city.

Analysis shows that black women had a rate of premarital births 7.7 times higher than that of whites. This differential was reduced to a multiple of 6.1 after parents' education, region and urban residence were controlled for, and to one of 5.5 after further adjustment for whether the respondent was living with both natural parents at the age of 14. Control for the respondent's graduation from high school did not reduce the black-white differential in the risk of premarital birth. These findings suggest, according to the researchers, that "at most, about 30 percent of the difference between blacks and whites can be accounted for by . . . differences in background variables."

The analysis was repeated, comparing the premarital birthrates of women classified into high- and low-risk groups. High risk involved coming from a disrupted family in a central city of the north-central United States, in which the parents did not complete high school. Low risk was associated with respondents who were living with both parents at age 14, whose parents had both completed high school, and whose families lived either in the South or not in a central city. This set of calculations shows that white respondents with the low-risk characteristics had only a five percent risk of having a premarital birth before the age of 25. The comparable estimate for low-risk blacks was 25 percent. At the other end of the scale, the odds of a premarital birth for high-risk whites was 58 percent, compared with one of 65 percent for high-risk blacks.

Discussing their findings, the authors claim that, like the Chicago study, the analysis of national data "document[s] very large diversity within the black population," and demonstrates that "there is no monolithic culture that leads to high rates of unmarried childbearing among blacks." However, the researchers caution, the "major factor behind racial differences is the relative proportions in the high-risk and low-risk groups," particularly the far greater likelihood among blacks of growing up in a single-parent family. This direction of thought leads the authors to question how much the higher levels of marital instability among blacks reflect the economic condition of black males.

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Pill Use Reduces Risk Of Functional Ovarian Cysts and Ovarian Cancer

Women who have used the pill have a reduced likelihood of developing functional ovarian cysts. Pill use also appears to confer a certain degree of protection against cancer of the ovary. These are two recent findings from the long-term study of contraceptive methods being carried out at the University of Oxford (by the Oxford/Family Planning Association Contraceptive Study).[1] The findings of this study are consistent with the results of other British and U.S. research that has looked at the link between pill use and conditions of the ovary.[2] However, unlike the earlier research, the current study distinguishes between the different types of ovarian cysts and finds the protective effect of oral contraceptives to be stronger against corpus luteum cysts than against follicular cysts.

The study population consists of 17,032 white married women who were recruited between 1968 and 1974 (when they were 25–39 years of age) from 17 family planning clinics in England and Scotland. These women are still being followed up by telephone and home visits, through the mail and through their clinic and hospital records. The cases in the current part of the study are 324 women diagnosed through laparoscopy or laparotomy as having ovarian cancer, benign ovarian neoplasms or functional ovarian cysts (either follicular cysts or corpus luteum cysts). Follicular cysts (derived from follicles that have reached a partial degree of maturation) are more common than cysts derived from the corpus luteum. However, both types of cyst may grow large and thus cause menstrual disorders. They may also rupture into the pelvis and cause pain and bleeding.[3]

For 147 cases, suspicion of the condition was the reason for the surgical procedure (primary diagnosis), while for the remaining 177, the condition was discovered during the course of some other procedure (secondary diagnosis). The researchers examined the incidence of each condition in relation to the woman's age, parity, age at first birth and contraceptive use. In addition, the rates were analyzed in terms of social class, body weight and cigarette smoking. Women who had used the pill at some time were subdivided into those who had used it in the six months preceding the diagnosis (recent use) and those who had used it only before that period (past use).

The only characteristic with a statistically significant positive relationship to ovarian cancer, benign ovarian neoplasms and follicular cysts was the woman's age. Follicular cysts were also positively associated with parity. There were no clear associations between corpus luteum cysts and any of the demographic variables. Neither did any consistent relationships emerge between the four conditions and social class, smoking or body weight.

Women who had ever used the pill were only one-quarter as likely to have developed ovarian cancer as women who had never taken oral contraceptives. The researchers calculated the incidence of ovarian cancer among recent users, past users and never-users of the pill and found that the age-adjusted rate was 12 per 100,000 among never-users, compared with three per 100,000 among recent and past users combined. An even greater reduction in the risk of corpus luteum cysts emerged—an estimated 78 percent. No relationship was found between pill use and benign ovarian neoplasm (teratoma or cystadenoma).

The researchers also investigated whether women taking progestogen-only pills were at greater risk of developing functional ovarian cysts than were women using other methods of birth control. Even though the number of cases was very small, they found some support for such an association, especially when women taking progestogen-only pills were compared with those taking combination pills.

The researchers believe that their findings with respect to ovarian cancer and functional cysts are consistent with those of earlier British and U.S. studies. They explain the absence in their study of any relationship between benign ovarian neoplasm and pill use in terms of the theory that these tumors are probably present from the earliest stages of fetal life, and, as such, pill use cannot confer any protection against them.

On the basis of the risk estimates derived from their study, the investigators calculate that for every 100,000 women using the pill, 28 will be spared having to undergo surgery for the treatment of ovarian cysts.

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Average of 63% Approve Of Legal Abortions; No Change over 15 Years

Levels of approval of legal abortion have remained almost unchanged during the last 15 years. In 1987, according to the most recent survey taken by the National Opinion Research Center (NORC), approval among adult Americans ranges from 40 percent—for an abortion obtained for any reason—to nearly 90 percent if the pregnancy would seriously endanger the woman's health. There is virtually no difference in approval between Catholics and Protestants, but individuals who report low levels of religious commitment are considerably more likely to approve than are those who report high levels. Approval is also substantially higher among people with some college education than among those with less than a high school education. Whites are somewhat more approving than blacks. Adults under age 30 are slightly more likely to approve of abortion than are those over age 65, and men are slightly more likely than women.[1]

The NORC first asked adult Americans in 1965 whether they thought it should or should not be possible for a pregnant woman to obtain a legal abortion under six circumstances. The six reasons ranged from serious health endangerment to the desire to have no more children. The NORC then repeated the survey (as part of its General Social Survey) in 1972 and every year thereafter except 1979, 1981 and 1986. Since 1977, it has asked respondents a seventh question—whether they approve of legal abortion "for any reason." The 1987 abortion questions were addressed to 1,466 persons aged 18 and older. Since 1972, the NORC has queried a total of 21,168 Americans about their abortion attitudes.

Table 1 shows the proportions approving of legal abortion for various reasons in 1987, 1985 and 1972 and the average proportions doing so over the 16-year period. In 1987, the average level of approval for *all* reasons combined is 63 percent, not much different from the 62 percent who approved in 1985; however, the 1987 approval level is four points higher than that of 1972, the year before the Supreme Court outlawed restrictive state abortion laws. For the entire period 1972–1987, the average approval rate for all reasons is 66 percent.

The largest difference between 1987 and 1985 is in the level of approval for *any* reason—40 percent vs. 37 percent, respectively. During the last 10 years, the rate of approval for any reason has averaged 38 percent. Since 1972, the proportions approving of abortion have increased or decreased only slightly; and in only two cases are the approval rates in 1987 a little lower than they were in 1972—when the reason for the abortion is that the woman is poor and can't afford another child, and when she is unmarried and unwilling to marry the man involved in the pregnancy.

Thirty-eight percent of Catholics, compared with 34 percent of Protestants, approve of abortion for any reason; and the average proportions in each group who approve for all reasons combined are virtually the same—52 percent of Catholics, compared with 51 percent of Protestants. Strength of religious commitment makes a much more substantial difference, whatever the religious affiliation. Thus, the most committed have an average approval rate of 49 percent for all reasons combined, and the least committed, one of 68 percent. An even larger gap exists between respondents who have had less than a high school education and those who have attended college—47 percent of the former approve of legal abortion, compared with 72 percent of the latter. Approval averages 61 percent among whites, 49 percent among blacks. The differences in the average levels of approval reported by men and women, and by people younger than 30 and older than 65, are small (63 percent vs. 57 percent, and 60 percent vs. 54 percent, respectively). Democrats and Republicans are equally likely to express approval (59 percent and 60 percent, respectively).

Table 1. Percentage of U.S. adults approving of legal abortion for various reasons,* NORC General Social Surveys, various years

Reason	1987	1985	1972	Avg., 1972–1987
Serious health endangerment	88	89	87	90
Strong chance of serious defect	80	79	79	82
Pregnancy the result of rape	81	81	79	83
Low-income, can't afford	45	44	49	50
Unmarried, doesn't want to marry man	42	41	44	46
Married, wants no more children	42	40	40	44
Any reason	40	37	38	38†
Avg., all reasons	63	62	59	66

*Nonresponses distributed proportionally.
†1977–1987.

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Credits

Cover design by Ira Shapiro.

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Comment

Taking Family Planning Out of Title X: The Impact of the Proposed New Regulations

By Jeannie I. Rosoff

On September 1, 1987, the Department of Health and Human Services (DHHS) published in the *Federal Register* its proposed new Title X regulations. These proposed amendments reflect changes in the Title X program that had been called for by President Reagan on July 30, in a speech before leaders of the antiabortion movement. After a lengthy justificatory preamble, the publication spells out the precise language the DHHS has proposed. Excerpts from the language follow:

Definitions

"Family planning" means the process of establishing objectives for the number and spacing of a family's children, and selecting the means (including natural family planning methods, adoption, infertility services and general reproductive health care, abstinence and contraception) by which those objectives may be achieved. As such, family planning does not include medical services or counseling related to pregnancy care after pregnancy is diagnosed (including prenatal or postpartum care or counseling), or abortion-related services. As it relates to the statutory prohibition on the inclusion of abortion as a method of family planning, proper family planning should reduce the incidence of abortion.

"Grantee" means the organization to which a grant is awarded under section 1001 of the Public Health Service Act.

"Organization," as applied to an applicant for or grantee of funds under section 1001 of the Public Health Service Act, means any public or private nonprofit entity in a state. An organization may operate multiple family planning or related programs or projects.

"Program" and "project," which are used interchangeably in these regulations, both refer to the identified activity approved by the Secretary for support under section 1001 of the Public Health Service Act, unless the context indicates otherwise. . . .

A project may not receive funds . . . unless it provides assurance satisfactory to the Secretary that it does not include abortion as a method of family planning. . . .

Abortion Counseling and Referral

In order to give effect to the statutory prohibition on the use of Title X–appropriated funds in projects where abortion is a method of family planning, a project which provides counseling and referral for abortion services as a method of family planning is not eligible to receive funds. . . . In addition, because Title X funds are intended only for family planning, services related to pregnancy care after pregnancy is diagnosed may not be provided with Title X funds. Where appropriate, medical or social service referrals for non–Title X–supported services shall be made by providing a full list of available health care providers of appropriate prenatal medical care and delivery services and/or social service agencies from which a family planning client may select. Such referrals may not, however, be used as an indirect means to encourage or promote abortion . . . , such as consciously weighting the list of referrals in favor of health care providers and/or facilities which provide abortions. One effect of these regulations will be to insure the ability of otherwise eligible organizations or programs that refuse to engage in abortion-related activities to receive support. . . .

Separation of Services

A project . . . must be kept entirely separate and distinct, financially and physically, from any abortion-related activities. This requirement includes maintaining separate financial, accounting, personnel and medical record systems and separately maintaining other project functions and physical facilities (including office space, equipment, stationery and the like) in such a way as to clearly separate Title X–funded activities from abortion-related activities. This requirement prohibits, by way of example, common waiting, consultation, examination and treatment areas; shared telephone numbers and receptionists; common names for eligible and ineligible programs; and common office entrances and exits. Although common street or mailing addresses will presumptively constitute a failure to separate adequately Title X–funded programs from other programs which include abortion as a method of family planning, grant applicants may seek to establish the reasonableness of such arrangements in exceptional cases where, as in the example of a large metropolitan hospital with abortion and family planning services located in different wings, the fact of physical separation is otherwise established and no use of appropriated funds in an ineligible program is likely.

Abortion Advocacy

A project . . . may take no action which encourages, promotes or advocates abortion as a method of family planning, or which assists a woman in obtaining an abortion as a method of family planning. Actions are considered to encourage, promote or advocate abortion as a method of family planning if they in any way have the effect of facilitating obtaining abortion as a method of family planning. Such prohibited actions include the following:

(1) Lobbying for the passage of proabortion legislation, providing speakers to argue for abortion as a method of family planning, or paying dues to organizations that advocate abortion as a method of family planning;

(2) Using legal action to make available in any way abortion as a method of family planning;

(3) Developing, assisting in the development of, posting or disseminating in any way materials (including printed matter and audiovisual materials) that advocate abortion as a method of family planning. . . .

Jeannie I. Rosoff is president of The Alan Guttmacher Institute (AGI). This article is based on the comment on the proposed new Title X regulations that the AGI submited to the DHHS on Oct. 5, 1987. Asta M. Kenney and Lisa Kaeser, associates for policy development, and Cory Richards, director of public policy, all at the AGI, made invaluable contributions to this article.

The DHHS authors of this new language assert that the proposed regulations are justified under section 1008 of the Title X statute, a section which has remained unchanged since 1970, and which provides that no appropriated Title X funds be used "in programs where abortion is a method of family planning."[1] In fact, however, the regulations go far beyond whatever might be necessary to ensure compliance with section 1008. Indeed, if they are promulgated and allowed to stand, the regulations would completely overhaul the Title X program by administrative fiat, and would do this without the approval of Congress.

Redefining Family Planning

Under the guise of setting compliance standards for section 1008, the DHHS is proposing to add to the Title X regulations a radical new definition of family planning that is at odds not only with the common meaning of the term but also with the Title X program's 17 years of legislative, administrative and operational history.

Current Title X regulations require that all family planning projects (usually clinics supported in part by Title X funds) provide "a broad range of acceptable and effective medically approved family planning methods (including natural family planning methods) and services (including infertility services and services for adolescents)."[2] This provision assures that agencies that provide only natural family planning methods or that will not make direct referrals for abortion are eligible for Title X funding, but only if they are part of a Title X project that provides "a broad range" of methods and services, and only if they agree to refer to other facilities those patients who request services that the agencies are unwilling or unable to provide.

Under the proposed regulations, however, a new definition of family planning services is offered: Family planning services would now comprise, in the following order, "natural family planning methods, adoption, infertility services and general reproductive health care, abstinence and contraception." Thus, while contraceptive services could be provided, they clearly would be secondary in the administration's view. Natural family planning and abstinence would be the preferred means of family planning for those who wish to prevent pregnancy, along with adoption and infertility services for those couples who want children but have difficulty conceiving. Moreover, when read together with the administration's current legislative proposal for Title X,[3] the new family planning definition becomes even clearer in purpose. In the administration's proposed bill, the long-standing requirement under the Title X statute that all family planning projects provide "a broad range of acceptable and effective . . . family planning methods"[4] would be dropped.

While the bill itself has virtually no chance of passage, these actions, combined, demonstrate the administration's intention to alter the fundamental purposes of the current program. And they portend a planned shift in DHHS priorities and funding *away* from the provision of family planning services as they are now provided. The significance of this departure in policy and its potential impact on American women are obvious: In 1983 (the last year for which program information is available), some 4,966,000 women were served in subsidized clinics (most with some Title X support).[5] Nine out of 10 of those patients received services clearly intended to prevent pregnancy. Eighty percent chose a medical contraceptive method—the pill, the IUD, the diaphragm or sterilization—and nine percent selected a nonprescription method. The remainder of the patients served by family planning clinics came for information, pregnancy tests, minor gynecologic care, screening and treatment for sexually transmitted diseases and infertility services.[6]

Overall, about nine percent of all visits to family planning clinics involve a pregnancy test. A somewhat higher proportion of initial visits (13 percent) include the provision of a pregnancy test.[7] And for teenagers, a major reason for making a first visit to a family planning clinic is to obtain a pregnancy test—one out of five teenagers comes for that reason.[8] Still, only about four percent of the five million family planning clinic patients nationwide are pregnant—either intentionally or unintentionally—when they come to the clinic.[9]

Under current Title X program guidelines, women with unintended pregnancies who request information about their options are to be given nondirective counseling on alternative courses of action, and upon request are to be referred to other service providers. The alternatives specified are prenatal care and delivery; infant care, foster care and adoption; and pregnancy termination.[10] These guidelines are consistent not only with standards of medical practice set forth by all relevant medical societies but also with long-standing DHHS policy to offer referrals for any services (including social services) needed by patients and not provided on-site.

Moreover, there is no evidence that Title X funds have ever been used to perform or pay for abortions in violation of section 1008. The argument that pregnancy counseling and referral practices in family planning clinics "promote" abortion or "encourage" women to have abortions by funneling pregnant women to abortion clinics has no foundation in reality. The General Accounting Office, the investigative arm of Congress, conducted a series of thorough audits of Title X grantees in the early 1980s and "found no evidence that Title X funds had been used for abortions or to advise clients to have abortions."[11] The DHHS's inspector general conducted similar audits and reached similar conclusions.[12] Indeed, Secretary Otis Bowen of the DHHS testified before Congress only last February that there is no evidence that Title X funds have been used for abortion in violation of the law.[13] Former Secretary Margaret Heckler testified likewise in 1984,[14] and the acting assistant secretary for health did so in 1985.[15]

In short, there is no evidence that current Title X policies promote or encourage abortion. However, even if some clarification of the current regulations is deemed advisable, such clarification should not, by any stretch of the imagination, entail or provide the pretext for the kind of radical restructuring of the program that is proposed in the new regulations.

Informed Consent

In the preamble to the proposed regulations, the DHHS takes the position that the mere provision of information about abortion is tantamount to promotion of abortion, stating that

> the purpose of counseling programs for pregnant women is to provide information upon which they will base a course of action; counseling concerning abortion would be pointless in the absence of an expectation that some women receiving such counseling will choose to have an abortion. Similarly, providing a referral for abortion facilitates the obtaining of abortion, and the intended and actual effect of a referral program is that at least some women referred will select abortion as a method of family planning.

Yet according to generally recognized ethical standards, the provision of factual information and referrals is not deemed to be promotion. On the contrary, it is an essential prerequisite to the ability of patients to exercise self-determination in their own lives. Indeed, even the U.S. Agency for International Development, in its 1984 antiabortion policy, acknowledges that

> passively responding to a question regarding where a safe, legal abortion may be obtained is not considered promotion if the question is specifically asked by a woman who is already pregnant, the woman clearly states that she has already decided to have a legal abortion, and the family planning counselor reasonably believes that the ethics of the medical profession in the country requires a response regarding where it may be obtained safely.[16]

From the time of Title X's original enactment, in 1970, a fundamental premise of the program has been voluntary and informed participation on the part of the patient. The original purpose of the legislation was (and remains) "to assist in making comprehensive voluntary family planning services readily available to all persons desiring such services."[17] Both the House and the Senate committee reports contained language on the importance of voluntary participation and freedom from coercion.[18] Reflecting the intent of the legislation, the first regulations (issued in 1971) not only included language on voluntary participation but also required grantees to provide an assurance that "services will be made available in such a manner as to protect the dignity of the individual."[19] Current regulations include virtually the same language.[20] Such provisions are not unique to Title X but are to be found in many other federal programs as well. The Medicaid statute (under which family planning services are a mandated benefit), for example, has long required that "services . . . be provided in a manner consistent with . . . the best interests of the recipients."[21]

Voluntary participation and freedom from coercion are inseparable from informed consent, and here, too, Congress has made plain its intent. In the 1975 reauthorization of Title X, both the House and the Senate committees discussed the relationship between voluntary participation and informed consent and spelled out, at some length, the elements of informed consent, including the provision of information about the risks and benefits of services and the disclosure of any appropriate alternatives.[22] Both these concepts are retained in current Title X regulations and guidelines.[23]

The rights of patients to be given full information and to make their own decisions as to the care they wish, or do not wish, to receive are central to the code of conduct for all professional groups providing services related to pregnancy. These professional groups include the American College of Obstetricians and Gynecologists, the American Hospital Association, the American Medical Association, the American Nurses Association, the National Association of Social Workers and the Nurses Association of the American College of Obstetricians and Gynecologists.[24]

Failure to respect the patient's right to full information and self-determination not only is a breach of professional ethics but also can have consequences for the provider. As of 1982, 37 states recognized a legal right to sue and recover damages for lack of informed consent.[25] And in the landmark case of *Canterbury* v. *Spence* in 1972, the U.S. Court of Appeals for the D.C. Circuit determined that a physician has a duty to disclose all information that a reasonable person would consider relevant.[26] Indeed, courts have held that the parents of a child born handicapped have legal grounds for suing a physician who failed to give them complete and accurate information about their risk of bearing a handicapped child and failed to inform them that prenatal tests are available to aid them in determining whether the fetus is defective.[27] Had such couples received proper counseling and testing, according to the courts, they might have undergone the tests that are capable of detecting many genetic abnormalities before birth and might have opted for abortion. Parents who have been involved in litigation of this type have argued that the doctor's negligence prevented them from making an informed decision about the pregnancy.

Claims based on this concept have been recognized by every state court that has been asked to consider the issue, and these claims are currently honored in at least 16 states. In acknowledging such claims, the courts have often concluded that the constitutionally protected right to privacy in matters of reproductive choice entitles parents to compensation if they are deprived of the choice of whether to bear a handicapped child.[28] As recently as August 1987, the Michigan Court of Appeals reaffirmed its previous ruling that a doctor must inform a pregnant woman when her fetus may be born deformed so that she may choose an abortion. The appeals court panel held that "as long as abortion remains an option allowed by law, the physician owes a duty to furnish patients with adequate information for them to be able to decide whether to choose that course of action."[29] Yet the proposed regulations not only ignore the requirements of informed consent, they implicitly repudiate the concept entirely.

Continuity of Care

Just as informed consent is basic to the provision of medical care, so are continuity of care and the coordination of services. As early as 1969, regulations for family planning projects under the Maternal and Child Health program (Title V of the Social Security Act) stated that "projects are to be designed to assure comprehensiveness and continuity in the health management and supervision of project patients with respect to family planning services."[30] The Senate committee report accompanying the initial authorization of the Title X program in 1970 also addressed this issue, specifically including the provision of "referral to other medical services as needed."[31] The 1971 Title X regulations echoed this theme by requiring "provision for coordination and use of referral arrangements with other providers of health care services, with local health and welfare departments, hospitals, and voluntary agencies, and health services projects supported by other federal programs."[32]

The provision of family planning services, like any other medical service, cannot be isolated from related medical care that may be needed by the patient, in this case pregnancy diagnosis and subsequent counseling. Women who are pregnant should not be given a contraceptive method. Thus, a health care provider who suspects pregnancy either from a woman's medical history or as a result of a physical examination would be negligent in recommending contraception without confirming that the woman is, in fact, not pregnant. Similarly, women who return to a clinic because they need a checkup, or because they have a problem with their contraceptive method, will sometimes suspect a pregnancy—or will actually be pregnant. Amenorrhea or light periods, for example, are not uncommon among women beginning to use the pill. In order to offer safe contraception, current Title X guidelines require the provision of pregnancy diagnosis and related counseling. When a woman is found to be pregnant, it is incumbent on the provider to assist her in identifying the services she needs—in the same way the provider would assist her if any other condition requiring medical attention were identified. Thus, the current Title X regulations requiring projects to coordinate with other providers[33]—as well as the guidelines requiring pregnancy diagnosis, counseling and referral—are consistent with the program's long history of emphasizing continuity of care.

From a medical perspective, the requirement in the proposed regulations that medical records for family planning and abortion be kept totally separate is also profoundly troubling. Without full information about a woman's medical history, and particularly her pregnancy-related history, providers can make serious misjudgments about the appropriate course of medical attention—whether related to contraception, birth or abortion.

The proposed regulations not only interfere with the patient's right to self-determination once she is pregnant, they also interfere with the quality of medical care she may be able to receive. The language mandates the referral of all women for prenatal care, but at the same time prohibits the provision of counseling regarding the importance of early and regular prenatal care or the availability of adoption as an alternative. The proposed regulations even forbid discussion of other services that may be needed for the treatment of medical conditions related to or potentially aggravated by pregnancy—for example, a suspicious breast lump in a woman just diagnosed as pregnant. Under these regulations, once a woman is found to be pregnant, she is to be left entirely on her own, disenfranchised from any right to any assistance on the part of the clinic and its personnel.

FDA Requirements

The FDA is charged by law with the evaluation of the safety and efficacy of drugs and devices and with the protection of the health of the American public. The proposed regulations would exclude Title X patients from the protection of the FDA law and would require grantees and clinic personnel to ignore the FDA statute and requirements, thus placing themselves at risk of legal sanctions.

The most obvious examples are the FDA requirements for the labeling of IUDs and oral contraceptives. For example, physician labeling for the intrauterine device provides that "if pregnancy should occur with a Cu-7 or Tatum-T in situ, the Cu-7 or Tatum-T should be removed if the thread is visible, or, if removal proves to be or would be difficult, interruption of the pregnancy should be considered and offered to the patient as an option, bearing in mind that the risks associated with abortion increase with gestational age."[34]

Other FDA labeling requirements warn that a physician must make sure that a woman is not pregnant before prescribing a contraceptive method or inserting a contraceptive device[35] Observing this requirement would make it exceedingly difficult for a physician not to discuss the option of abortion with the patient.

In addition, the proposed regulations would have a devastating impact on contraceptive counseling. The current FDA-approved labeling for oral contraceptives reviews the statistical risks associated with the "control of fertility and [with] no control" and concludes that the lowest health risks are for those patients who use condoms and diaphragms and are willing to resort to abortion if these methods fail.[36] Thus, contraceptive counseling routinely includes information about the relative safety and effectiveness of the different methods. And the willingness of a patient to risk pregnancy—with the subsequent options of giving birth or having an abortion—is a major factor in choosing a method. Yet such careful counseling—and perhaps even the dispensing of contraceptives including the FDA-approved patient packet inserts—might be viewed as promoting abortion under the proposed regulations.

The Intent of Congress

The proposed regulations are clearly at odds with the intent of Congress. When it enacted the Title X statute in 1970, the House-Senate conference committee declared that

> it is, and has been, the intent of both Houses that the funds authorized under this legislation be used only to support preventive family planning services, population research, infertility services, and other related medical, informational, and educational activities. The conferees have adopted the language contained in section 1008, which prohibits the use of [Title X] funds for abortion, in order to make clear this intent. The legislation does not and is not intended to interfere with or limit programs conducted in accordance with state or local laws and regulations which are supported by funds other than those authorized under this legislation.[37]

This language makes plain that Congress did not intend to prohibit abortion or abortion-related activities funded with non–Title X monies. Nor is there any indication that Congress ever intended this prohibition to extend to the provision of information about abortion. Indeed, the specific mention in the report of "other related medical, informational and educational activities"[38] is certainly broad enough to encompass counseling and referral activities required by commonly accepted professional standards. In addition, a 1973 memo from the DHEW's Office of General Counsel states, "we continue to believe that [the legislative history of Title X] does not legally require the extension of the section 1008 prohibition beyond the literal impact of that section to the collection and dissemination of information."[39]

In fact, over the past decade, Congress has considered provisions similar to those of the proposed regulations on several occasions and has rejected them.[40]

Wall of Separation

While Title X is an important source of funding for subsidized family planning clinics, providing about a third of all public funds, other federal and state dollars, as well as patient fees, help support services.[41] Most clinics derive funds from several sources, and current Title X regulations require grantees to make every reasonable effort to collect third-party reimbursement from sources such as private insurance and Titles XIX and XX of the Social Security Act (Medicaid and the Social Services block grant).[42]

The proposed regulations would conflict with Medicaid law and regulations by obliging Title X grantees to serve Medicaid and Title X patients in separate facilities. The Medicaid statute requires that "the best interests of the recipients" be protected, that no patient be compelled to undergo treatment that violates his or her religious beliefs and that young people served under the Early Periodic Screening, Diagnosis and Treatment Program have appropriate treatment provided or arranged for, directly or through referral.[43] Medicaid regulations clarify that referrals must extend not only to services covered by Medicaid but also to those outside the program.[44]

Where states provide funds for family planning services—as two-thirds of them do[45]—such services must be provided in compliance with state law. Since no state prohibits counseling and referral for abortion and since virtually all states have laws governing informed consent for medical procedures,[46] services funded from state sources would have to be separated from those funded under Title X.

Finally, it should be kept in mind that current Title X regulations require the collection of fees on a sliding scale basis from patients with incomes over 100 percent of the official poverty level ($9,300 per year for a family of three) and the collection of full fees from patients with family incomes over 250 percent of poverty.[47] Under a recent court decision, patients who pay with private funds cannot be denied information about their options. In that case, which involved a Missouri law that would have prohibited the use of public funds, employees and facilities for the "encouragement" of abortion and for abortion counseling, the court found that the prohibition imposed a "significant barrier to a woman's right to consult with her physician and exercise her freedom of choice." The court argued that patients who paid for clinic services as defined in the proposed Missouri law would not have access to medical information available to all other women going to privately funded facilities.[48]

In short, the proposed Title X regulations conflict with other Title X regulations regarding patient fees and third-party reimbursement. The only way in which the proposed regulations could be administered without placing grantees at risk of running afoul of the DHHS's policy would be to restrict services to women with incomes under 100 percent of the poverty level who are *not* Medicaid-eligible and segregate these patients in clinics funded solely by Title X. At these sites, the government's own health and safety standards would be ignored, and poor women, just because they are poor, would receive inadequate counseling, biased information and second-class medical care. This is certainly not what Congress intended when it enacted the program in 1970.

Ironically, while the department allegedly seeks to build a "wall of separation" between family planning services and abortion, the net effect of the proposed regulations would be to build a wall of segregation between poor patients and those who do not have to depend for their health care on programs funded through the DHHS.

Update

As this article goes to press, comments on the proposed regulations are still being received by the Office of Population Affairs. To date, approximately 60,000 organizations and individuals have submitted comments. The final tally, in terms of overall numbers and numbers opposed to or in support of the regulations, may not be known for several weeks.

However, an informal review of the lists indicates that a large majority of the organizations submitting comments in favor of the proposed regulations are individual churches, whose national bodies have not so far made any official response to the proposal. Among the individuals who have submitted unfavorable comments are 33 U.S. senators and over 100 members of the House of Representatives. In addition, 31 state health departments, the deans of all 25 of the country's schools of public health, and officials of nearly 80 national medical associations, religious organizations, women's and children's groups and education and health groups have submitted comments opposing the regulations. Officials of the DHHS still plan to promulgate final regulations by mid-December. They have said that they will incorporate some of the changes suggested in the comment letters, paying particular attention to the substantive recommendations of national organizations. However, it remains to be seen whether the final regulations will reflect the views of groups strongly opposed to the form they currently take.

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Special Report

U.S. Differentials in Infant Mortality: Why Do They Persist?

By *Jeanette H. Johnson*

A number of recent studies have begun to examine in some depth the large racial differentials in infant mortality that persist in the United States. The statistics are sobering. Although black infants made up 16 percent of the 3.54 million singleton deliveries in the United States in 1980, they accounted for 35 percent of all low-birth-weight infants. Largely because of this disadvantage in birth weight, black babies constituted 28 percent of all infants who died in that year, according to a series of articles based on a landmark study of infant mortality in the United States conducted by the Centers for Disease Control.

Between 1960 and 1980, the overall risk of infant mortality declined from 23.3 deaths per 1,000 live births to 11.0. The nationwide study attributes almost all of the reduction in infant mortality to advances in medical technology. But it concludes that technology has done nothing to reduce the gap in infant mortality between blacks and whites; the chances that a black infant will die during the first year of life are still twice those of a white infant—the same odds as existed in 1960.

The researchers involved in the national study believe that the higher proportion of low-birth-weight infants among blacks is probably the result of adverse socioeconomic conditions. Other recent studies of heterogeneous populations conducted within a number of states expand on this theory, suggesting that cultural, social and biological factors may interact to create unique mortality patterns among racial and ethnic subgroups.

National Data

The 1980 National Infant Mortality Surveillance project (NIMS), coordinated by the Centers for Disease Control, linked birth and death certificates for infants born as singletons in 1980 who died between birth and their first birthday.[1] The data come from reporting areas covering all of the United States and are estimated to be 95 percent complete. Of the 3.54 million singleton babies delivered in 1980, almost 39,000 babies died before the age of one—26,000 during the neonatal period (within the first 27 days of life) and 13,000 during the postneonatal period (from 28 days to one year of life).

As Table 1 shows (see page 228), infants who weighed less than 1,500 g represented 0.8 percent of white births and 2.1 percent of black births; those weighing 1,500–2,499 g constituted 4.2 percent of white births and 9.2 percent of black births. Infants in these low-birth-weight categories had a substantially elevated risk of dying compared with infants in more normal weight categories—those of 2,500 g or more. In 1980, all infants born alive and weighing less than 500 g died during the neonatal period, as did 64.8 percent of those weighing 500–999 g, 18.7 percent of those weighing 1,000–1,499 g, 5.4 percent of those 1,500–1,999 g in weight and 1.6 percent of those 2,000–2,499 g. Fewer than one percent of infants in each of the weight categories above 2,500 g died in the first 27 days of life.

The total neonatal mortality risk* among black infants was 12.5 deaths per 1,000 live births, compared with 6.2 deaths per 1,000 live births among whites. Black infants of all birth weights less than 3,000 g actually experienced lower neonatal mortality risks than did white infants, as Table 1 indicates. This advantage was offset, however, by the larger proportion of black infants than of white infants born into the lower weight categories at which neonatal mortality risks were highest. The investigators calculate that about 70 percent of the racial difference in neonatal mortality risk was attributable to the larger proportion of black infants who were of low birth weight, and that about 30 percent was due to higher black neonatal mortality risks at average birth weights.[2] Altogether, only six percent of infants born in 1980 weighed under 2,500 g, but these babies accounted for 70 percent of all neonatal deaths.

The postneonatal mortality risk was 3.7 deaths per 1,000 neonatal survivors, and this risk was also twice as high among blacks as among whites—6.5 per 1,000, compared with 3.1. Black infants had a higher postneonatal mortality risk than whites did in every birth-weight category. Infants of low birth weight had higher postneonatal mortality risks than did those of normal weight—ranging from 135.2 deaths per 1,000 neonatal survivors at birth weights of 500–999 g to 20.7 per 1,000 at 1,500–1,999 g and to fewer than three deaths per 1,000 among those weighing 3,000 g or more at birth. However, in contrast with most neonatal deaths, the majority of postneonatal deaths (74 percent) occurred among infants who weighed 2,500 g or more at birth, because far larger numbers of survivors were born at normal birth weights.

The investigators found that 62 percent of neonatal deaths were attributable to causes generally linked to low birth weight, such as prematurity and respiratory distress; 79 percent of those deaths occurred among infants weighing less than 2,500 g at birth.[3] Another 27 percent of neonatal deaths were due to congenital anomalies, five percent to infections and the remaining six percent to other causes.

Sudden infant death syndrome was responsible for 36 percent of postneonatal deaths; congenital anomalies, for 18 percent; infections, for 14 percent; injuries, for nine percent; and conditions such as pre-

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*The term "mortality rate" is normally used when deaths are measured in relation to births during a given year. Because the NIMS data are for a birth cohort rather than for a particular year, the NIMS researchers coined the term "mortality risk" to characterize deaths occurring within that cohort.

Table 1. Number of births and percentage distribution by birth weight; number of neonatal deaths; and neonatal mortality risk (NMR)* by birth weight; according to race, United States, 1980

Measure and birth weight	Total	Whites	Blacks
Births			
Number (000s)	3,543.0	2,845.9	575.3
% distribution			
<500 g	0.1	0.1	0.2
500–999 g	0.4	0.3	0.8
1,000–1,499 g	0.5	0.4	1.1
1,500–1,999 g	1.1	0.9	2.1
2,000–2,499 g	3.9	3.3	7.1
2,500–2,999 g	16.1	14.3	24.1
3,000–3,499 g	37.4	36.9	39.0
3,500–3,999 g	29.5	31.5	20.0
4,000–4,499 g	9.0	10.1	4.4
≥4,500 g	1.9	2.1	0.8
Total	100.0	100.0	100.0
Neonatal Deaths			
Number	25,935	17,775	7,215
NMR	**7.3**	**6.2**	**12.5**
<500 g	1,000.0	1,000.0	1,000.0
500-999 g	647.6	660.8	615.6
1,000--1,499 g	186.5	212.1	131.3
1,500–1,999 g	53.9	61.6	36.1
2,000–2,499 g	16.0	18.3	10.6
2,500–2,999 g	4.0	4.2	3.6
3,000–3,499 g	1.9	1.8	2.4
3,500–3,999 g	1.4	1.3	2.5
4,000–4,499 g	1.5	1.4	2.8
≥4,500 g	3.5	3.0	8.7

*Deaths per 1,000 live births.

maturity and respiratory distress, for six percent. The remaining 17 percent of postneonatal deaths were attributed to other causes. The risk of dying after the first month of life was two to three times greater among black infants than among white infants for all but one cause of infant mortality—congenital anomalies, for which there was little difference in risk by race.

Infant Mortality Risk

When the 1980 neonatal and postneonatal deaths are combined, the result is an overall infant mortality risk of 11.0 deaths per 1,000 live births—9.3 per 1,000 among white infants and 18.9 per 1,000 among blacks. As Table 2 indicates, males experienced a higher infant mortality risk than did females. Examination of birth order reveals that second- and third-born infants experienced the lowest infant mortality risks, but among infants weighing 2,500 g or more, first-born infants had the least risk of dying (not shown).

Analysis by mother's age indicates that babies born to women aged 25–34 had the lowest infant mortality risks. In contrast, infants with teenage mothers tended to be at high risk. During the neonatal period, the mortality risk for such infants was higher primarily because larger proportions of babies born to teenagers than of those born to older mothers were of low birth weight. When the age-specific neonatal mortality risks were adjusted for differences in birthweight distributions, the association between young age and high neonatal mortality risk was eliminated, except among babies born to white mothers younger than 15 and to black mothers younger than 16.[4] Postneonatal mortality risks, however, remained elevated among infants of teenage mothers even after adjustment, probably because of socioeconomic factors related to early motherhood, according to the researchers.

When calculated by region of the country, the risk of dying in the first year was lowest among infants born in the West, and highest among those born in the South, but the ranking differed by race.[5] Among white infants, those born in the Northeast had the lowest risk of dying, while those born in the South had the highest. Among black infants, those born in the West faced the lowest mortality risk, and those in the North Central region, the highest. However, 53 percent of all black infants born in 1980 were born in the South, and they constituted 25 percent of births in that region. Nine percent of black infants were born in the West, constituting only seven percent of that region's births. These regional differences in the proportion of all births that were black are one reason why the South had the highest infant mortality risk overall, and the West, the lowest. But white infants born in the South had elevated mortality risks compared with whites born elsewhere in the nation, even when birth weights were 2,500 g or more; this differential suggests a need for improved primary obstetric services in that region, say the researchers.

The NIMS project also reveals large differences among the states in infant mortality, with the highest risk (20.6 deaths per 1,000 live births) found to be nearly three times greater than that observed in the state with the lowest risk (7.4). The most favorable statewide mortality risk among black infants (12.5 deaths per 1,000 live births) was higher than the worst statewide risk found among white infants (10.1).[6]

Trends Since 1960

Comparing the 1980 NIMS data with data from 1960, the researchers analyzed changes in infant mortality over the 20-year period.[7] The 1980 neonatal mortality risk represented a 56 percent decline from the 1960 level of 16.7 deaths per 1,000 live births; the decline was greater among white infants than among blacks (59 percent vs. 49 percent). The smallest declines occurred among infants weighing 500–999 g (27 percent), and the largest declines among infants weighing 1,500–1,999 g (73 percent). However, the proportion of low-birth-weight infants declined by only one percentage point over the period, and therefore, very little of the overall decline in neonatal mortality—only nine percent—can be attributed to improved birth weights, say the researchers. They attribute 91 percent of the decline to improved survival rates within birth-weight categories as a result of advances in obstetric and newborn care.

The 1960 postneonatal mortality risk of 6.7 deaths per 1,000 neonatal survivors declined by 45 percent during the 20-year period. The decline was larger among blacks than among whites (56 percent vs. 41 percent). For both races, there was an increase in the postneonatal mortality risk among infants who weighed 500–999 g at birth, and the researchers suggest that this may have been due to the postponement of some deaths from the neonatal to the postneonatal period. Postneonatal risks in all other weight categories, however, decreased during the period. Because of the larger overall decline in neonatal mortality than in postneonatal mortality, a higher proportion of infant deaths in 1980 than in 1960 occurred during the postneonatal period (33 percent vs. 28 percent). The overall infant mortality risk, which was 23.3 deaths per 1,000 live births in 1960, fell by 53 percent, with little difference in the rate of decline by race. Consequently, the infant mortality risk for blacks remained at approximately twice the level for whites.

A baby's risk of dying from most of the major causes of infant death—conditions linked to low birth weight, infection and injuries—declined by at least half between 1960 and 1980. The risk of death from congenital anomalies also declined, but not as much as the risk from other causes. Consequently, congenital anomalies were responsible for a higher proportion of infant deaths in 1980 (24 percent) than in 1960 (16 percent).[8] In contrast, conditions linked to low birth weight caused 56 percent of deaths in 1960 and 42 percent in 1980. The risk of death from sudden infant death syndrome, however, increased dramatically. Fewer than one percent of infant deaths in 1960 were attributed to sudden infant death syndrome, but the comparable figure for 1980 was 14 percent. The researchers speculate that much of this increase may have been due to differences in the classification of deaths in which the cause was uncertain: Deaths that were attributed to suffocation in the crib in 1960, for example, seemed more likely to be classified as sudden infant death syndrome in 1980.

A recurring theme in the analysis of the NIMS data is that most of the decline in infant mortality, which has occurred among all birth weights, age-groups and races, reflects advances made in the technologies of obstetric, newborn and infant care. However, improvements in the survival rate of low-birth-weight infants have not been accompanied by improvements in the incidence of low birth weight, the researchers say. Reducing the proportion of low-birth-weight infants, they conclude, would appear to be the most likely way of achieving meaningful reductions in infant mortality in the future.

The gap between the races in the chances that a baby will survive the first year of life—a gap that has not narrowed in the past 20 years—remains one of the most distressing features of infant mortality in the United States. The researchers call for the development and application of "far more effective strategies" for reducing the incidence of low birth weight among black infants, for increasing the survival rate during the neonatal period among black infants weighing 3,000 g or more and for increasing the postneonatal survival rate among all black infants.

Finally, the researchers suggest that "within the United States, there still appear to be states in which improvements in quality of perinatal and neonatal care can be expected to pay dividends." They point out that infant mortality is nearly three times as high in the state with the highest infant mortality risk as in the state with the lowest. The researchers suggest that "differences considered intolerable between the United States and other developed countries must also be considered intolerable between states within the United States."

Subgroup Differences

Another study used data from the 1980–1982 birth cohort in the state of Florida to focus on differences in mortality and cause of death among racial and ethnic subgroups.[9] Examining linked birth and death certificates for the 404,633 live singleton births in the state over the three-year period, researchers found that while the infant mortality rate among black babies was more than double that among white babies (21.4 deaths per 1,000 live births vs. 9.9), the Hispanic rate (9.2) was slightly lower than that of whites. Hispanics had a slightly higher neonatal mortality rate than did whites (6.9 and 6.6, respectively) and blacks had the highest rate of all (13.4). Hispanics had considerably lower postneonatal mortality than did whites (2.3 and 3.3 deaths per 1,000 live births, respectively; both had considerably lower postneonatal mortality than did blacks (8.0).

When the data on four Hispanic subgroups were examined, the variation in infant mortality rates proved to be quite wide: Central and South Americans and Cubans had the lowest rates (6.4 and 8.3 per 1,000 live births, respectively), while Puerto Ricans and Mexicans had the highest rates (13.9 and 14.1, respectively). The same pattern was true for neonatal mortality—with rates ranging from a low of 4.6 per 1,000 to a high of 10.0. Cubans had the lowest postneonatal mortality rate—only 1.5 deaths per 1,000 live births—and Puerto Ricans had the highest—4.3.

Infant mortality among blacks was higher than that among whites and Hispanics for each of 10 broad syndromes into which the researchers divided causes of death. For blacks the lowest excess mortality (when compared with average rates) was associated with the causes of death that are predominant in the neonatal period; the highest excess mortality was associated with the causes that are predominant in the postneonatal period. Hispanic mortality was the same as or lower than white mortality for seven of the 10 categories of infant death, and tended to be particularly low for postneonatal causes of death. The extent of racial and ethnic differences in infant mortality was reduced, but not eliminated, when the rates were controlled for maternal education, maternal age, birth weight and time of first prenatal care. For example, the extent of excess infant deaths among blacks fell from 72 percent above average to 21 percent, while the extent to which Hispanic mortality was lower than average was reduced from 26 percent to 18 percent.

The outstanding aspect of these data, say the researchers, "is the extent of mortality differentials among Hispanic subgroups," with the relative differences being as large as those found between blacks and whites. They add that overall Hispanic mortality in their study is lower than that found in some other studies, but note that the Hispanic population in Florida is dominated by Cubans, who have a "relatively favorable socioeconomic position vis-à-vis other Hispanics." What the research clearly illustrates, the investigators conclude, is that infant mortality is a complex problem, and the cultural, social and biological factors that contribute to unique mortality patterns among racial and ethnic subgroups are still not well understood.

Arizona Study

A study in Arizona compared the rates of infant mortality among three ethnic and racial subgroups—Hispanic, Indian and black—with the rate found among whites.[10] Researchers analyzed data for the 4,084 infant deaths that occurred in the state between 1976 and 1983. They found that at the beginning of the study period, infant mortality was higher among all three minority groups than it was among whites, and that Indians had the highest rate of all—19.7, compared with 18.2 among blacks, 13.5 among Hispanics and 12.0 among whites. While infant mortality then declined for all groups, the rate fell the least among blacks and the most among Hispanics and Indians. In fact, Hispanics had achieved a lower rate than whites by the end of the study period—8.0 deaths per 1,000 live births, compared with 9.5 among whites, 11.9 among Indians and 17.6 among blacks.

The data show that the proportions of Hispanic and Indian infants who were of low birth weight were not much different from the proportion among whites, whereas the proportion among blacks was

Table 2. Number of infant deaths and infant mortality risk (IMR),* by various characteristics, according to race

Measure and characteristic	Total	Whites	Blacks
No. of deaths	38,887	26,478	10,880
IMR	**11.0**	**9.3**	**18.9**
Sex			
Male	12.1	10.4	20.6
Female	9.7	8.2	17.2
Birth order			
1	11.0	9.5	19.2
2	10.4	8.8	18.7
3	10.8	9.2	17.5
4	11.9	9.8	18.8
5	14.2	11.6	22.2
≥6	14.6	12.1	20.3
Mother's age			
10–14	31.5	25.0	36.0
15–19	15.8	13.6	21.2
20–24	11.1	9.4	18.5
25–29	9.2	8.0	17.0
30–34	9.0	7.8	17.1
35–39	10.8	9.3	19.3
40–44	15.1	14.1	19.6
45–49	22.6	21.1	35.0
Region			
Northeast	10.4	8.8	19.0
North Central	10.8	9.2	20.7
South	12.1	9.8	18.6
West	9.9	9.1	16.5

*Deaths per 1,000 live births.

twice that of whites. Most of the infant mortality decline in Arizona, as in the United States in general, was in neonatal mortality—the result of better survival rates among low-birth-weight infants, although there was little improvement among blacks in this birth-weight category. As a result of the steep declines in infant mortality among Hispanics and Indians, the researchers say, low-birth-weight infants in these two groups now have a better chance of survival than do comparable white babies. Although Indians had the greatest improvement in postneonatal mortality rates, their rates remained higher at the end of the study than those among blacks and were more than double the rates among whites and Hispanics.

The researchers divided the causes of infant mortality into those broadly related to innate factors (such as immaturity, birth injuries and congenital disorders) and those related to external circumstances (such as infections, parasitic diseases and accidents). At the end of the study period, there was a wide gap between blacks and the other three groups in mortality due to the first type of causes—15.1 deaths per 1,000 live births among blacks, compared with 8.4, 7.7 and 6.6 among Indians, whites and Hispanics, respectively. Because Arizona has such a small black population, meaningful rates for deaths due to external causes could not be established for black infants. Deaths from these causes remained unchanged among whites during the study period but declined by more than one-half among Hispanics and Indians, so that Hispanics at the end of the study had basically the same rate as whites.

The researchers point out that Arizona is the only state that does not participate in the federal Medicaid program, although a local alternative was introduced in 1982. They speculate that a lack of access to and utilization of health care by blacks may be one reason why infant mortality rates among blacks showed virtually no improvement during the study period. Native Americans can obtain free health care through the Indian Health Service, although such care is not necessarily readily accessible because of the geographic size of the reservations and the lack of transportation. However, the researchers note, Indian infants have longer average postpartum hospital stays than any other group in the state, and they have experienced a steady decline in mortality, most notably in the neonatal period.

The researchers claim that the high rate of infant mortality from external causes found among native Americans points to the limitations of health care programs in overcoming the indirect socioeconomic effects of the impoverished environment of most Indians in the state. The investigators are less able to account for the favorable infant mortality rate—both neonatal and postneonatal—found among Hispanics, also a disadvantaged group. However, they suggest that the favorable rate may, in part, reflect the underreporting of deaths because of return migration to Mexico, may be partly attributable to cultural factors that allow a minority group to "offset economic disadvantage with healthful behaviors," and may be partly due to as yet unknown biological factors.

Infant Mortality by Income

A study of metropolitan Ohio residents between 1960 and 1980 divided census tracts into five income areas, and found a strong inverse association between infant mortality and family income.[11] In 1960, the infant mortality rate ranged in a linear pattern from 17.7 deaths per 1,000 live births in the highest of the five income categories to 34.9 in the lowest. In 1970, the highest and lowest income categories still had the same top and bottom ranking, but the three middle categories had converged and were no longer in linear order. The researcher speculates that the convergence of infant mortality rates for the middle-income categories may have been helped by the expansion of maternal and child health care programs during the 1960s, but that these programs were not successful in narrowing the gap between the highest income group and the most needy members of society.

By 1980, the pattern had reverted to that found in 1960, with the infant mortality rate rising linearly from 8.8 deaths per 1,000 live births in the highest income category to 19.9 in the lowest category. According to the researcher, socioeconomic differences in infant mortality in 1980 were at least as pronounced as they had been in 1960 and perhaps were even more so

In addition, the Ohio data indicate that the timing of infant deaths also is associated with economic status. The proportion of infant deaths that occur during the postneonatal period rises as economic level declines, because a greater share of postneonatal than of neonatal mortality is due to causes that public health specialists believe to be associated with the external environment, such as poor and overcrowded housing, lack of sanitation and nutritionally inadequate diets. The persistence of a similar socioeconomic differential in neonatal mortality rates indicates that the environment also influences the incidence of low birth weight, says the researcher, who points out that the proportion of low-birth-weight babies rose from four percent among college-educated women to 11 percent among women with less than a high school education. He believes that the frequency of low birth weight reflects class differences in such behavioral factors as age at childbearing, interval between pregnancies, time and frequency of prenatal care visits, adequacy of diet and smoking, drug and alcohol habits.

"A major problem we face is that many of the programs that have the most promise for achieving further reductions in infant mortality, particularly among low-income persons, are being cut back," concludes the researcher. He points to the Special Supplemental Food Program for Women, Infants and Children, low-income housing assistance and family planning programs, among others, as beneficial programs whose federal funding has been declining.

Interactions Among Variables

A California study attempts to determine whether many of the risk factors associated with infant mortality continue to be significant after other variables are controlled for.[12] Included in the analysis are all singleton births occurring in 1978 among black, white and Hispanic women aged 15–44—a statewide sample of 289,232 live-born infants. Of these, 2,705 died before the age of one.

Overall, the unadjusted California data show many of the patterns of infant mortality common to other studies. Black infants had double the mortality rate of white infants, whereas the Hispanic rate was only slightly higher than the white rate. In addition, mortality rates were relatively high among infants born to teenagers, single women and mothers with fewer than 12 years of education, and they were relatively low among first-born infants, infants weighing more than 2,500 g at birth, and babies whose mothers had started prenatal care in the first trimester.

Within broad racial groups, some differences from the general pattern emerge. For example, white infants born to older women (aged 35–44) had mortality rates comparable to those of infants born to women aged 20–34, whereas black and Hispanic infants born to older women had rates comparable to infants of teenage mothers. Among white infants, first-borns had the same infant mortality rate as babies of higher birth orders; first-born black and Hispanic infants had lower rates than infants of higher birth orders. While white and Hispanic infants of single mothers had higher mortality rates than those born to married mothers, the rates among black infants were the same whatever the mother's marital status. White and black infants whose mothers had had fewer than 12 years of education were twice as likely to die as infants whose mothers had had 13 years or more. However, the educational difference was much narrower among Hispanic infants, because those born to mothers with less than a high school education had considerably lower mortality rates than babies born to white and black mothers with a comparable level of schooling. In addition, infant mortality increased among both black and white babies with each trimester's delay in prenatal care, but increased for Hispanic infants only if the mother waited until the third trimester to obtain prenatal care.

A log-linear analysis was performed to determine how interactions among five demographic variables—maternal age, marital status, race, education and infant's birth order—influence infant mortality. Holding all other associations constant, the analysis found statistically significant interactions between maternal age and both marital status and infant's birth order. This association means that the relationship between birth order (or mother's marital status) and infant mortality varies with the mother's age. Among women aged 15–24, for example, first-born infants had a better chance of survival than did those of subsequent birth orders; among mothers 25–44, however, infants of second-order and subsequent births had lower mortality rates than did first-born infants. Similarly, infants of women aged 15–19 were more likely to survive if their mothers were single than if they were married, but the babies of women aged 20–44 were more likely to survive if their mothers were married. In addition, a significant interaction occurs between race and both marital status and education, thus altering the direct relationship between race and infant mortality. Babies born to white and Hispanic women had a greater chance of survival if their mothers were married than if their mothers were single, whereas the survival rate of black babies was better if their mothers were single. White and black babies had lower chances of survival as the mothers' educational levels declined. However, lags in maternal education did not compromise survival rates among Hispanic infants.

Using those associations, the researcher calculated infant mortality risks for various categories of infants and found the lowest risk (5.6 deaths per 1,000 live births) among white infants who were the first-born children of married women aged 20–24 with some college education. The highest risk (41.4 deaths per 1,000 live births) occurred among infants of second and higher birth orders born to married black women aged 15–19 who had not completed high school.

While, in general, infant mortality tends to be linked with age, race, marital status, birth order and education, the analysis also determines that some of the associations are spurious and result from the influence of the other factors. None of the factors is without any effect on infant mortality, but of all five factors measured, education and race appear to be particularly significant. When education is held constant, for example, most of the excess infant mortality found among infants born to mothers aged 15–19 disappears. Controlling for education does not reduce measurably the differential infant mortality associated with race, however, and if the analysis controls for race (by examining only data for blacks), unmarried status shows little effect. The researcher speculates that this is because black women are more likely than whites to have spouses who are unemployed or have low incomes, and married women do not receive public or family assistance to the same extent that single mothers do. The reason why the babies of married teenagers do not fare better than those of single teenagers may be of a similar nature.

The California study also examines how the demographic variables interact with early neonatal mortality, and with mortality that occurs between one week and one year of life. The results show that maternal age, marital status and the infant's birth order all interact with each other to affect mortality in the first week of life. Race and education, however, influence mortality during this period independently of other variables. All of the variables are also associated with infant mortality that occurs beyond the first week of life, but the interactions are different: The relationship between maternal age and mortality is dependent on marital status and infant's birth order, while the relationship between race and mortality is linked to marital status and education. None of the factors has an independent effect during this later stage of mortality.

Birth weight and the timing of prenatal care are often considered to be proximate determinants of infant mortality. As might be expected, the California data show large differences in mortality for infants at birth weights of less than 1,500 g, of 1,500–2,500 g and of more than 2,500 g among all three racial groups. Black infants, however, were more likely to be of low birth weight (11 percent of all births) than were white and Hispanic babies (five percent each). The differentials in infant mortality by birth weight existed whether death occurred within the first week of life or later. The effect of the timing of prenatal care on infant mortality was examined by the trimester in which care began. In all three racial groups, mortality in the early neonatal period was consistently higher only among infants whose mothers received care in the third trimester or not at all. The timing of prenatal care had a stronger effect on infant mortality occurring after the first week of life, especially among white and black infants; their mortality increased substantially with each trimester's delay. Hispanic mortality during this period was notably higher only if the mother did not receive prenatal care until the last trimester or not at all. However, 10 percent of Hispanic mothers fell into this classification, compared with five percent of blacks and three percent of whites.

The interaction between birth weight and prenatal care and the demographic variables is also examined. The analysis shows that birth weight interacts with each of the other demographic variables to mediate their impact upon infant mortality. Most of the associations previously shown to be statistically significant, in fact, are no longer significant if birth weight is taken into account. When all other associations are held constant, the relationship between race and birth weight, for example, greatly reduces the difference between white and black infant mortality. Birth weight has a stronger effect upon mortality in the first week of life than in the rest of the first year, when the demographic variables are more likely to be associated with mortality independently of birth weight. However, even in the first week of life, birth weight does not account for all the effects of the demographic variables.

The analysis indicates that prenatal care does not provide as direct a path as does birth weight through which demographic variables affect mortality. When prenatal care is entered into the equation, all of the other associations between the demographic variables and infant mortality remain significant. Prenatal care appears to have a statistically significant effect only as it interacts with race and mortality. However, late prenatal care is significantly associated with low birth weight. Therefore, in addition to having some direct effects on mortality, prenatal care may have indirect effects as a proximate determinant of birth weight. What is clear is that the odds of infant death among white and black babies weighing more than 2,500 g increase substantially with each trimester of delay in prenatal care: For white infants, the risk of death more than doubles, and for blacks, it more than triples. For both black and white infants weighing 1,500–2,500 g at birth, there is little difference in risk by whether prenatal care is obtained in the first or the second trimester, but the risk is approximately double if there is no prenatal care or if care is not obtained until the third trimester. Among Hispanic infants, the odds of mortality remain strikingly low, regardless of when prenatal care is obtained.

The study concludes that all five demographic factors analyzed are associated in some way with infant mortality, but that most of these associations are modified by interactions among the variables. Among the most interesting interactions are the ways in which age and race modify the association between marital status and infant mortality: Overall, infants born to unmarried mothers have a higher risk of dying than do infants whose mothers are married. However, this is not true among infants of black mothers and among those born to teenage mothers. In addition, the California data tend to confirm that Hispanics have low infant mortality rates, which is somewhat puzzling considering that Hispanics tend to be of low socioeconomic status.

Calling for more research on the determinants of infant mortality, the investigator states that birth weight and prenatal care are "important but incomplete explanations" for the various associations between demographic variables and infant death. He believes that differentials in infant mortality risk in the United States are "politically and socially meaningful," since "hundreds of excess or unnecessary infant deaths are at issue."

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Blessed Events and the Bottom Line:

Financing Maternity Care in the United States

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Books in Review

Loose Ends

Abortion, Medicine, and the Law
third ed., ed. by J. Douglas Butler and David F. Walbert, Facts on File Publications, New York, 1986, $40.00 (cloth), 795 pp.

Reviewed by Eve W. Paul and Dara Klassel

The television format for presenting controversial topics is familiar: Individuals on opposite sides of an issue present their viewpoints, one or more "impartial" scholars comment on the debate, and the moderator attempts to tie everything together. *Abortion, Medicine, and the Law* follows this format, minus the moderator. The omission is disastrous.

This completely revised edition of a 1973 publication consists of a compilation of essays of varying quality on the legal (seven articles), medical (six articles) and ethical (three articles) aspects of abortion. Some essays are by prochoice advocates, some are by opponents of abortion, and others are by scholars who remain uncommittedly objective toward the issue. Unfortunately, the editors do not forewarn readers of the biases they may encounter in some of these essays. Nor do they attempt to establish a balance of opinion. Thus, most of the legal and medical essays are by advocates of choice, but two of the three contributions on ethics are virulently antiabortion—one is by Ronald Reagan and the other is by John T. Noonan, Jr., a spokesman for the right-to-life movement. The third essay on ethics, which was written by Daniel Callahan, is provocative but equivocal.

The legal section is heavily weighted with articles that survey the myriad legislative attempts to restrict abortion rights, both before and since the *Roe* v. *Wade* decision. Some of these articles sacrifice depth for breadth, and because each attempts to cover the entire field, there is a great deal of repetition. Most disturbing, however, are the occasional flaws and quirks in legal and political analysis that the editors have not seen fit to check or to comment on. For example, the article by B. J. George, Jr., "State Legislatures Versus the Supreme Court," leaves the reader with the impression that the Supreme Court legalized only therapeutic abortions. While the Supreme Court certainly views abortion as a medical procedure and considers that a woman makes the decision to have an abortion in consultation with her physician, the Constitution does not require that abortion be justified on medical grounds. Only after the fetus is viable may the states require that abortions be performed solely for therapeutic reasons.

George runs into further problems with his strange nomenclature when he wrongly describes *Maher* v. *Roe* as a case involving a Connecticut policy that excluded "payments to patients receiving therapeutic abortions" [p. 44]. The issue in that case was, in fact, whether or not Medicaid should pay for the elective abortions of indigent women. Readers unfamiliar with abortion case-law, but attending to detail, will be hopelessly confused when they turn to coverage of the same case in another article—"The Abortion Controversy: A Study in Law and Politics," by Albert M. Pearson and Paul M. Kurtz—and find the Connecticut law described, more accurately, as one that withholds Medicaid assistance from women desiring "nontherapeutic abortions" [p. 117].

The Pearson and Kurtz article is a good example of the kind of idiosyncratic political analysis that the editors should have commented on. The authors assert that the states have used a strategy of "massive resistance" to federal abortion policy. According to them, this state strategy involves passing restrictive abortion legislation with three objectives: to accomplish indirectly what the *Roe* v. *Wade* decision has prohibited the states from doing directly; to impress the Supreme Court with the depth of public hostility toward the decision; and to create a political climate receptive to a constitutional amendment overturning the decision. The basic fallacy here is that the authors ascribe a collective intelligence to the states and omit any mention of the key actor in this drama—the organized antiabortion movement. In fact, the three objectives attributed to the states have been part of the antiabortion movement's legislative agenda for the past decade—an agenda that has been variously accepted and rejected by state governments depending on a multitude of complex political factors.

This type of oversimplification also underlies Pearson and Kurtz's discussion of proposed antiabortion amendments to the Constitution. They claim that the Hatch Amendment, which sought to return the power to regulate abortion to the states, was supported by "federalists," who decried *Roe* v. *Wade* as an intrusion on state power; whereas the "purer" Human Life Amendment, which sought to ban abortion outright, was supported by "moralists," who oppose *Roe* v. *Wade* because it legalized abortion. The authors, of course, ignore the reality that a good many "moralists," including the members of the National Right to Life Committee and of the National Conference of Catholic Bishops, became "federalists" (pragmatists, that is) and supported the Hatch Amendment when Congress seriously considered these bills in 1983.

Surely the editors could have chosen a more cogent article to represent antiabortion legal opinion than "The Law and History of Abortion: The Supreme Court Refuted," by Stephen M. Krason and William Hollberg. The essay attempts to discredit every reference to ancient and modern abortion law in the *Roe* v. *Wade* opinion. The result is a rather dull piece that is long on

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detail but short on analysis of the Court's reasoning regarding the right to privacy and the countervailing state interests.

On the other hand, the article by Janet Benshoof and Harriet Pilpel on the right of minors to confidentiality presents a lucid review of the law on this subject and clearly highlights the appalling effect of statutes that require parental or judicial involvement in a minor's decision to have an abortion. Don C. Smith's article "Wrongful Birth, Wrongful Life: Emerging Theories of Liability" gives an accurate account of legal decisions regarding the right of parents who have severely handicapped babies to sue physicians and genetic counselors. One would have wished, though, that the author had covered more completely the emerging issue of the constitutionality of laws that attempt to eliminate such suits.

Finally, not one article mentions what has become one of the major abortion issues of the 1980s: the attempt to curtail abortion rights by eliminating government funding for family planning services offered by organizations that also provide abortions or abortion-related information. The broad implications of this issue surely merit some attention in a book published in 1986.

The medical section of the book sheds light on the extent to which the legalization of abortion has benefited society. The section begins with an intriguing glimpse backward, originally written in 1966 by the late Alan F. Guttmacher, which has been "updated" by Irwin H. Kaiser to include current abortion data. Another essay, by Kenneth R. Niswander and Manuel Porto, duplicates Kaiser's data to some extent. Two essays dealing with epidemiologic findings—one by the late Christopher Tietze and the other by Willard Cates, Jr.—present data that clearly show the relationship between the legalization of abortion in the United States and the decline in maternal mortality. But no statistics can compare in emotional impact with the article by M. Neil Macintyre, Llew Keltner and Dorothy A. Kovacevich on the emotional effects on parents of the birth of a severely handicapped child or the article by Richard A. Schwartz on the psychological implications of abortion on request.

The Schwartz article effectively explodes the myth, promoted by antiabortion groups, that abortion almost always has harmful psychological effects on women. To the contrary, Schwartz points out that forcing women to bear unwanted children often imposes severe strain on women's mental and physical health and well-being; that psychological problems resulting from abortion are rare, occurring in only one or two percent of cases; and that there is a much lower incidence of postabortion psychosis than of postpartum psychosis.

After reading the well-balanced essays in the medical section, one turns with amazement to the ethics section, which fails to contain a single article supporting the ethical underpinnings of women's right to choose abortion. The editors' lame excuse for such a one-sided presentation is that "those topics have changed little and discussions of them are adequately available in print elsewhere" [p. xiii].

The piece by Ronald Reagan (who, as governor of California, signed into law a liberalized abortion bill) argues that abortion should be outlawed because "we cannot diminish the value of one category of human life—the unborn—without diminishing the value of all human life" [p. 353]. John T. Noonan, Jr. focuses on "the experience of pain by the unborn" during abortion procedures "however slight their cognitive powers, however rudimentary their sensations" [p. 367]. Only Daniel Callahan attempts a balanced presentation of the ethical issues, analyzing (and rejecting as inadequate) nine arguments frequently advanced both in support of, and in opposition to, the right to choose abortion. He concludes that "the deepest philosophical issue beneath the abortion question is the extent to which, in the name of freely chosen ends, biological realities can be manipulated, controlled and set aside" [p. 349].

Finally, the book does not contain a single essay that presents a feminist view of abortion; in fact, of the 16 essays in this collection, only two were coauthored by women. On the whole, this book is a disappointment.

(Continued from page 214)

it may depend on factors over which she has little or no control. For example, a woman who lacks private insurance may face administrative delays when she tries to obtain assistance from Medicaid or other government programs. Further delays may occur when she tries to find a provider of prenatal care that doesn't require payment as soon as services are rendered. The NSFG data show that women who lack private medical insurance are much more likely to go to a clinic for prenatal care. Further, clinic users are much more likely to begin such care after the first three months of pregnancy. These findings suggest that financial and administrative factors may play a role in preventing the timely use of prenatal care.

Aside from these substantive findings, the analysis yields an important methodological result—that education appears to be a reasonable proxy variable for health insurance coverage when the latter is not part of the data base. The data show that regardless of race, the proportions of adults who receive delayed care, and the proportions who use a clinic, are similar for women who have completed more than 12 years of education and for those who are covered by private health insurance. Among black women, the proportions are also similar for women who have had less than a high school education and for those who either lack insurance or receive public assistance. Among white adults, the proportions who get delayed care or attend a clinic differ for women who have no insurance and for those who use public assistance. However, combining these two insurance categories produces estimates similar to those for women with less than a high school education. Therefore, the education differential in prenatal care is reasonably close to the differential between those with and those without private insurance. This support for the use of education as a proxy for health insurance coverage is especially important because so many analyses of prenatal care are based on birth certificates, which contain data on educational level but not on insurance coverage.

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Indications Prevention of pregnancy. *DOSE-RELATED RISK OF THROMBOEMBOLISM.* Because studies have shown a positive association between OC estrogen dose and risk of thromboembolism, it is prudent to minimize estrogen exposure. Prescribe an OC with the least amount of estrogen compatible with an acceptable pregnancy rate and patient acceptance. Start new users on OCs containing 0.05 mg or less of estrogen.

Contraindications 1. Known or suspected pregnancy (see Warning #5). 2. Thrombophlebitis or thromboembolic disorders. 3. Past history of deep vein thrombophlebitis or thromboembolic disorders. 4. Undiagnosed abnormal genital bleeding. 5. OCs should not be used by women who have or have had any of the following: a. cerebral vascular or coronary artery disease, including myocardial infarction; b. known or suspected carcinoma of the breast; c. known or suspected estrogen dependent neoplasia; d. benign or malignant liver tumor that developed during use of OCs or other estrogen containing products.

> **WARNINGS: Cigarette smoking increases the risk of serious cardiovascular side effects from OC use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use OCs should be strongly advised not to smoke.**
>
> The use of OCs is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, liver tumor, gall bladder disease, visual disturbances, fetal abnormalities, and hypertension. Practitioners prescribing OCs should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems.* An increased risk of thromboembolic and thrombotic disease associated with OC use is established. One study demonstrated an increased relative risk for fatal venous thromboembolism and several studies demonstrated it for non-fatal venous thromboembolism. They estimate that OC users are 4-11 times more likely than nonusers to develop these diseases without evident cause. One British study reported an excess death rate of 40% in OC users, most of which resulted from cardiovascular disease. Another British study showed a lower death rate in OC users than controls; an increase in cardiovascular deaths was seen but was not statistically significant. A U.S. prospective study failed to disclose increased mortality rates from cardiovascular disorders, but a subset analyzed as a retrospective, case-control study showed significant increases in venous thromboembolism. CEREBROVASCULAR DISORDERS. Two American studies demonstrated an increased relative risk for stroke not shown in prior British studies. In an American study of cerebrovascular disorders in women with and without predisposing causes, relative risk of hemorrhagic stroke was estimated as 2.0 times greater and thrombotic stroke as 4-9.5 times greater in users than nonusers. A British long-term follow-up study reported in 1976 a highly significant association between OC use and stroke. Another study had suggested an association in 1974, but the number of cases was too small to estimate the risk. Subarachnoid hemorrhage has been shown to be increased by OC use in British and American studies. Smoking alone increases incidence of these accidents; smoking and pill use appear to increase risk more than either alone.

MYOCARDIAL INFARCTION (MI). Increased relative risk of MI associated with OC use has been reported. One British study found that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia) the higher the risk of developing MI, regardless of OC use. OCs were an additional risk factor. In terms of relative risk, it has been estimated that nonsmoking OC users (smoking is considered a major predisposing condition to MI) are twice as likely to have a fatal MI as nonsmoking nonusers. OC users who are smokers have a 5-fold increased risk of fatal infarction compared to nonsmoking users, and a 10-12 fold increased risk compared to nonsmoking nonusers. The number of cigarettes smoked is important. In determining the importance of these relative risks, baseline rates for various age groups must be considered. (Estimates are based on British vital statistics which show acute MI death rates 2-3 times less than in the U.S., so U.S. death rates could be higher.) Importance of other predisposing conditions in determining relative and absolute risks has not been quantified; other synergistic actions may exist. RISK OF DOSE. Using data from several national adverse reaction reporting systems, British investigators concluded that risk of thromboembolism, including coronary thrombosis, is directly related to estrogen dose in OCs. OCs with 0.1 mg or more of estrogen were associated with a higher risk of thromboembolism than those containing 0.05-0.08 mg but quantity of estrogen may not be the sole factor. This was supported by a U.S. study. A British study found a positive association between dose of progestogen or estrogen and certain thromboembolic conditions. Swedish authorities noted decreased reporting of thromboembolic episodes when higher estrogen preparations were no longer prescribed. Careful epidemiological studies to determine degree of thromboembolic disease risk associated with progestogen-only OCs have not been done. Thromboembolic disease has been reported in women using these products, and they should not be considered free of excess risk. PERSISTENCE OF RISK. Two studies have suggested an increased risk may persist for 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI; another study suggested the persistence of risk for subarachnoid hemorrhage. ESTIMATE OF EXCESS MORTALITY FROM CIRCULATORY DISEASES. A large British prospective study estimated mortality rate per 100,000 women per year from circulatory system diseases for OC users and nonusers according to age, smoking habits, and duration of use. The overall annual excess death rate for OC users was estimated to be 20/100,000 (ages 15-34 – 5/100,000; ages 35-44 – 33/100,000; ages 45-49 – 140/100,000). Risk is concentrated in long-term users and in smokers, and may persist after OC discontinuation. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all occurred in women 35 or older. An update provided the following rates: ages 15-34 – 1/6700 for nonsmokers and 1/2000 for smokers; ages 45 and over – 1/2500 for nonsmokers and 1/500 for smokers. Risk appeared to increase with parity but not with duration of use. Until more women under 35 with continuous use for 5 or more years are available, it is not possible to assess relative risk for this age group. Data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. Estimates include combined risk of the contraceptive method (e.g., thromboembolic and thrombotic disease for OCs) plus risk attributable to pregnancy or abortion if the method fails (which varies with the effectiveness of the contraceptive method). The study concluded that mortality associated with all contraceptive methods is below that of childbirth, except for OCs in women over 40 who smoke. (Rates given for pill only smokers for each age are for smokers as a class. For "heavy" smokers (more than 15 cigarettes a day), the rates would be about double; for "light" smokers (less than 15), about half.) The lowest mortality is with the condom or diaphragm backed up by early abortion. The study also concluded that OC users who smoke, especially over 30, have greater mortality risk than OC users who do not smoke.

Risk of thromboembolic and thrombotic disease associated with OCs increases with age after 30 and for MI is further increased by hypertension, hyperlipidemias, obesity, diabetes, or history of preeclamptic toxemia, and especially by smoking. The following chart gives a gross estimate of risk of death from circulatory disorders associated with OC use.

SMOKING HABITS AND OTHER PREDISPOSING CONDITIONS – RISK ASSOCIATED WITH USE OF OCs

Age	Below 30	30-39	40 +
Heavy smokers	C	B	A
Light smokers	D	C	B
Nonsmokers (no predisposing conditions)	D	C,D	C
Nonsmokers (other predisposing conditions)	C	C,B	B,A

A – Use associated with very high risk
B – Use associated with high risk
C – Use associated with moderate risk
D – Use associated with low risk

Physician and patient should be alert to earliest manifestations of thromboembolic and thrombotic disorders (e.g., thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). Should any of these occur or be suspected, discontinue OC immediately. A 4-6 fold increased risk of post-surgery thromboembolic complications has been reported in OC users. If feasible, discontinue OCs at least 4 weeks before surgery associated with increased risk of thromboembolism or prolonged immobilization. Before resuming OC after major surgery or bedrest, balance risks of post-surgery thromboembolic complications with contraceptive needs. Data suggest varicose veins substantially increase risk of superficial venous thrombosis of the leg, the risk depending on the severity of the varicosities. 2. *Ocular Lesions.* Neuro-ocular lesions such as optic neuritis or retinal thrombosis have been associated with OC use. Discontinue OC if there is unexplained, sudden, or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma.* Long-term continuous administration of natural or synthetic estrogen in certain animals increases certain tumors, benign or malignant, such as breast, cervix, vagina, uterus, ovary, pituitary and liver. Certain synthetic progestogens, none currently in OCs, increase the incidence of mammary nodules, benign and malignant, in dogs. Several retrospective case-control studies reported an increased relative risk (3.1-13.9 times) associating endometrial carcinoma with the prolonged use of estrogens in postmenopausal women. One publication reported the first 30 cases submitted to the registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the adenocarcinomas found in women without predisposing risk factors for adenocarcinoma of the endometrium (e.g., irregular bleeding when OCs were first given, polycystic ovaries), nearly all occurred in women who had used sequential OCs, which are no longer marketed. No statistical association has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs, although individual cases have been reported. Studies have shown no increased risk of breast cancer to OC or estrogen users. One study found no overall increased risk of breast cancer in OC users but a greater risk was suggested for OC users with documented benign breast disease and for long-term (2-4 years) users. Another study found a history of breast cancer among grandmothers or aunts was significantly more frequent among breast cancer patients who had used an OC continuously for one or more years than among nonusers with breast cancer. One other study indicated an increasing risk of breast cancer in women taking menopausal estrogens, which increased with duration of follow-up. One author suggests that extended (over 6 years) OC use prior to first full term pregnancy was associated with a significant relative risk of breast cancer. A reduced occurrence of benign breast tumors in OC users has been well documented. One study reported malignant melanoma more frequently in OC users than controls and suggests an increased incidence of urinary tract and thyroid cancers. A prospective study of women with cervical dysplasia found an increase in severity and conversion to cancer *in situ* in OC users compared to nonusers. This became statistically significant after 3-4 years of use. Nonreversal of dysplasia within the first 6 months of pill use was suggested to predict progression after prolonged exposure. One study disclosed an increased risk of cancer of the cervix (largely carcinoma *in situ*) in OC users under 40, particularly those who had used OCs over 4 years. There have been other reports of microglandular hyperplasia of the cervix in OC users. One study reported an association between OC use and endocervical adenocarcinoma. In summary, there is no confirmed evidence from human studies of increased risk of cancer associated with OCs. Close clinical surveillance of all OC users is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, take appropriate diagnostic measures to rule out malignancy. Monitor OC users with a strong family history of breast cancer or who have breast nodules, fibrocystic disease or abnormal mammograms with particular care. 4. *Liver Tumors.* Sudden severe abdominal pain or shock may be due to rupture and hemorrhage of a liver tumor. There have been reports associating benign or malignant liver tumors with short-term and long-term OC use. One study reported use of OCs with high hormonal potency and age over 30 may further increase risk of hepatocellular adenoma. Two studies relate risk with duration of use, risk being much greater after 4 or more years of use. Long-term OC users have an estimated annual incidence of hepatocellular adenoma of 3-4/100,000. Although an uncommon lesion, it should be considered in women presenting with an "acute abdomen." The tumor may cause serious or fatal hemorrhage. Patients with liver tumors have demonstrated variable clinical features which may make preoperative diagnosis difficult. Some cases presented because of right upper quadrant masses, while most had signs and symptoms of acute intraperitoneal hemorrhage. Routine radiological and laboratory studies may not be helpful. Liver scans may show a focal defect. Hepatic arteriography may be useful in diagnosing primary liver neoplasm. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring.* Use of female sex hormones – estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. Females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated to be of the order of 1/1000 exposures or less. Although there is no evidence that OCs further enhance the risk of developing this type of malignancy, such OC users should be monitored with particular care. A high percentage of women exposed to diethylstilbestrol (30-90%) have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are a precursor of vaginal malignancy. Male children so exposed may develop urogenital tract abnormalities. Although similar data are not available on other estrogens, it cannot be presumed that they would not induce similar changes. Increased risk of congenital anomalies, including heart and limb defects, has been reported following use of sex hormones, including OCs, in pregnancy. One case-control study estimated a 4.7-fold increased relative risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some exposures involved only a few days of treatment. Data suggest risk of limb-reduction defects in exposed fetuses is somewhat less than 1/1000 live births. In a large prospective study, cardiovascular defects in children born to women who received female hormones, including OCs, during early pregnancy occurred at 18.2/1000 births, compared to 7.8/1000 for children not so exposed *in utero*. These results are statistically significant. A Welsh study found a statistically significant excess of neural tube defects among offspring of prior OC users (within 3 months) than among controls. The incidence of twin births may be increased for women who conceive shortly after discontinuing OC use. In the past, female sex hormones were used during pregnancy in an attempt to treat threatened or habitual abortion. There is evidence that estrogens are ineffective and there is no evidence from well controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. If the patient has not adhered to the prescribed schedule, consider possible pregnancy at the first missed period (or 45 days from the last menstrual period if progestogen-only OCs are used) and discontinue OC use until pregnancy has been ruled out. For any patient who has missed two consecutive periods, rule out pregnancy before continuing the OC. If pregnancy is confirmed, tell the patient about potential risks to the fetus and discuss advisability of continuing the pregnancy. Women who discontinue OCs to become pregnant should use an alternate form of contraception for a period of time before attempting to conceive. A 3-month period is supported by a study suggesting increased frequency of neural tube defects in women impregnated during the first 3 months after cessation of OC use. Do not use progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding as a pregnancy test. 6. *Gall Bladder Disease.* Studies report increased risk of gall bladder disease in OC or estrogen users. In one study, an increased risk appeared after 2 years of use and doubled after 4-5 years. In another study, an increased risk was apparent between 6 and 12 months. 7. *Carbohydrate and Lipid Metabolic Effects.* Because a decrease in glucose tolerance has been observed in a significant percentage of patients on OCs, prediabetic and diabetic OC users should be carefully observed. An increase in triglycerides and total phospholipids has been observed in OC users but its clinical significance is unknown. 8. *Elevated Blood Pressure.* An increase in blood pressure has been reported with OC use. Hypertension may occur within a few months of beginning OCs. In the first year of use, incidence of hypertension may be no higher in OC users than in nonusers. Incidence in users increases with exposure and in the fifth year of use is 2.5-3 times that in the first year. Age is strongly correlated with hypertension in OC users. Women with a history of elevated blood pressure (hypertension), preexisting renal disease, history of toxemia or elevated blood pressure during pregnancy, familial tendency to hypertension or its consequences," or history of excessive weight gain or fluid retention during the menstrual cycle may be more likely to develop elevated blood pressure when given OCs and should be monitored closely. Even though elevated blood pressure may remain within the "normal" range, closely watch elevations, particularly for women with other risk factors for cardiovascular disease or stroke. High blood pressure may or may not persist after OC discontinuation. 9. *Headache.* Discontinue OC and evaluate the cause of onset or exacerbation of migraine or development of a new pattern of headache which is recurrent, persistent, or severe. 10. *Bleeding Irregularities.* Breakthrough bleeding, spotting, and missed menses often make users discontinue OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, consider nonfunctional causes. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, use adequate diagnostic measures to rule out pregnancy or malignancy. If pathology has been excluded, time or another formulation may solve the problem. While potentially useful in minimizing menstrual irregularity, change to an OC with a higher estrogen content only if necessary since this may increase the risk of thromboembolic disease. Women with a history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may tend to remain anovulatory or to become amenorrheic after OC discontinuation. Women with these preexisting problems should be advised of this and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may occur in women without previous irregularities. A higher incidence of galactorrhea and of pituitary tumors (e.g., adenomas) has been associated with amenorrhea in former users compared with nonusers. One study reported a 16-fold increased incidence of pituitary prolactin-secreting tumors among patients with postpill amenorrhea when galactorrhea was present. 11. *Infertility.* There is evidence of impairment of fertility in women discontinuing OCs in comparison with other contraceptive methods, which appears to be independent of duration of use. While impairment diminishes with time, there is an appreciable difference in the results in nulliparous women for OC and other groups 30 months after discontinuation of birth control. For parous women the difference is not apparent 30 months after cessation of contraception. 12. *Ectopic Pregnancy.* Ectopic as well as intrauterine pregnancy may occur in OC failure. In progestogen-only OC failures, the ratio of ectopic to intrauterine pregnancies is higher than in nonusers, since the drugs are more effective in preventing intrauterine than ectopic pregnancies. 13. *Breast Feeding.* OCs in the postpartum period may interfere with lactation by decreasing quantity and quality of breast milk. A small fraction of OC hormonal agents has been identified in milk of mothers receiving OCs. Effects, if any, on the breast-fed child have not been determined. If feasible, defer OC use until the infant has been weaned.

Precautions *GENERAL.* 1. Take a complete medical and family history before starting OCs. Pretreatment and periodic physical exams should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant lab tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical. 2. Under the influence of estrogen-progestogen preparations, preexisting uterine leiomyomata may enlarge. 3. Observe patients with a history of psychic depression and discontinue OCs if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the OC and use an alternate method of contraception to determine whether the symptom is drug related. 4. OCs may cause some fluid retention. Prescribe with caution, and only with careful monitoring, in patients with conditions that might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma or cardiac, hepatic or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence while using OCs. Discontinue OC if jaundice develops. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution in such patients. 7. OC users may have disturbances in normal tryptophan metabolism that may result in a relative pyridoxine deficiency. The clinical significance is unknown. 8. Serum folate levels may be depressed by OC use. Since the pregnant woman is predisposed to folate deficiency and incidence of folate deficiency increases with increasing gestation, if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and related complications. 9. Advise the pathologist of OC use when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs. For example: a. Increased sulfobromophthalein retention. b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability. c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered. d. Decreased pregnanediol excretion. e. Reduced response to metyrapone test. f. Increased phospholipids and triglycerides. g. Temporarily decreased glucose tolerance. 11. Contact lens wearers who develop visual changes or changes in lens tolerance should be assessed by an ophthalmologist and temporary or permanent cessation of wear considered. DRUG INTERACTIONS. OCs may be less effective and there may be increased breakthrough bleeding from interactions with rifampin, isoniazid, ampicillin, tetracycline, neomycin, penicillin V, chloramphenicol, sulfonamides, nitrofurantoin, barbiturates, phenytoin, primidone, analgesics, tranquilizers, antimigraine preparations, antihistamines, and griseofulvin. OCs may alter effectiveness of such other drugs as oral anticoagulants, anticonvulsants, tricyclic antidepressants, antihypertensive agents (e.g., guanethidine), vitamins, hypoglycemic agents, tranquilizers, hypnotic preparations, theophylline, and beta blockers. *CARCINOGENESIS.* See Warnings. *PREGNANCY.* Pregnancy category X. See Contraindications and Warnings. *NURSING MOTHERS.* See Warnings.

Adverse Reactions An increased risk of the following serious adverse reactions has been associated with OC use (see Warnings): thrombophlebitis, thrombosis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, mesenteric thrombosis, liver tumors, cerebral hemorrhage, hypertension, gall bladder disease, congenital anomalies, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis, Raynaud's disease, arterial thromboembolism. The following adverse reactions have been reported in OC users and are believed to be drug related: bleeding irregularities (breakthrough bleeding, spotting, missed menses during treatment, amenorrhea after treatment), gastrointestinal symptoms (nausea, vomiting, bloating, abdominal cramps, colitis), dysmenorrhea, infertility after discontinuance of treatment, edema, chloasma or melasma which may persist after drug is discontinued, breast changes (tenderness, enlargement, and secretion), intolerance to contact lenses, changes in corneal curvature (steepening), change in weight (increase or decrease), change in cervical erosion and cervical secretion, possible diminution of lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, prolactin-secreting pituitary tumors, chilblains. The following adverse reactions have been reported in OC users and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of hair, erythema multiforme, erythema nodosum, hemorrhagic eruptions, vaginitis, porphyria, impaired renal function, malignant nephrosclerosis (hemolytic uremic syndrome), malignant hypertension, acute renal failure. **Information for the Patient** (See Patient Package Insert)

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Family Planning Perspectives

Volume 19, Number 6, November/December 1987

Clinic Screening for Chlamydial Infection
Contraceptive Use After Pill Discontinuation

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INDICATIONS AND USAGE: Loestrin is indicated for the prevention of pregnancy in women who elect to use OCs as a method of contraception. **Dose-Related Risk of Thromboembolism from Oral Contraceptives:** Two studies have shown a positive association between the dose of estrogens in OCs and the risk of thromboembolism. For this reason, it is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The OC product prescribed for any given patient should be that product containing the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance. It is recommended that new acceptors of OCs be started on preparations containing 0.05 mg or less of estrogen. **CONTRAINDICATIONS:** OCs should not be used in women with any of the following conditions: 1. Thrombophlebitis or thromboembolic disorders; 2. A past history of deep vein thrombophlebitis or thromboembolic disorders; 3. Cerebral vascular or coronary artery disease; 4. Known or suspected carcinoma of the breast; 5. Known or suspected estrogen-dependent neoplasia; 6. Undiagnosed abnormal genital bleeding; 7. Known or suspected pregnancy (see Warning No. 5); 8. Benign or malignant liver tumor that developed during the use of OCs or other estrogen-containing products.

WARNINGS

Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.

The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems.* An increased risk of thromboembolic and thrombotic disease associated with the use of OCs is well established. Three principal studies in Great Britain and three in the US have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic. These studies estimate that users of OCs are 4 to 11 times more likely than nonusers to develop these diseases without evident cause. **Cerebrovascular Disorders:** In a collaborative American study of cerebrovascular disorders in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than in nonusers and the risk of thrombotic stroke was 4 to 9.5 times greater in users than in nonusers. **Myocardial Infarction:** An increased risk of MI associated with the use of OCs has been reported, confirming a previously suspected association. These studies, conducted in the UK, found, as expected, that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia), the higher the risk of developing MI, regardless of whether the patient was an OC user or not. OCs, however, were found to be a clear additional risk factor. In terms of relative risk, it is estimated that OC users who do not smoke (smoking is considered a major predisposing condition to MI) are about twice as likely to have a fatal MI as nonusers who do not smoke. OC users who are also smokers have about a 5-fold increased risk of fatal infarction compared with users who do not smoke, but about a 10- to 12-fold increased risk compared with nonusers who do not smoke. Furthermore, the amount of smoking is an important factor. In determining the importance of these relative risks, however, the baseline rates for various age groups must be given serious consideration. The importance of other predisposing conditions mentioned above in determining relative and absolute risks has not yet been quantified; it is quite likely that the same synergistic action exists, perhaps to a lesser extent. **Risk of Dose:** In an analysis of data derived from several national adverse reaction reporting systems, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in OCs. Preparations containing 100 mcg or more of estrogen were associated with a higher risk of thromboembolism than those containing 50 to 80 mcg of estrogen. Their analysis did suggest, however, that the quantity of estrogen may not be the sole factor involved. This finding has been confirmed in the US. **Persistence of Risk:** In confirmation of earlier reports, two studies have suggested that an increased risk may persist for as long as 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI. In addition, one prospective study suggested the persistence of risk for subarachnoid hemorrhage. **Estimate of Excess Mortality from Circulatory Diseases:** A large prospective study carried out in the UK estimated the mortality rate per 100,000 women per year from diseases of the circulatory system for users and nonusers of OCs according to age, smoking habits, and duration of use. The overall excess death rate annually from circulatory diseases for OC users was estimated to be 20 per 100,000 (ages 15 to 34 – 5/100,000; ages 35 to 44 – 33/100,000; ages 45 to 49 – 140/100,000), the risk being concentrated in older women, in those with a long duration of use, and in cigarette smokers. It was not possible, however, to examine the interrelationships of age, smoking, and duration of use, nor to compare the effects of continuous versus intermittent use. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all of these deaths occurred in women 35 or older. Until larger numbers of women under 35 with continuous use for 5 or more years are available, it is not possible to assess the magnitude of the relative risk for this younger age group. The available data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. The estimates of risk of death for each method include the combined risk of the contraceptive method (eg, thromboembolic and thrombotic disease in the case of OCs) plus the risk attributable to pregnancy or abortion in the event of method failure. This latter risk varies with the effectiveness of the contraceptive method. The study concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of OCs in women over 40 who smoke. The lowest mortality is associated with the condom or diaphragm backed up by early abortion. The risk of thromboembolic and thrombotic disease associated with OCs increases with age after approximately age 30 and, for MI, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preeclamptic toxemia and especially by cigarette smoking. The physician and the patient should be alert to the earliest manifestations of thromboembolic and thrombotic disorders (eg, thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). If any of these occurs or is suspected, the drug should be discontinued immediately. A 4- to 6-fold increased risk of postsurgical thromboembolic complications has been reported in OC users. If feasible, OCs should be discontinued at least 4 weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization. 2. *Ocular Lesions.* There have been reports of neuro-ocular lesions, such as optic neuritis or retinal thrombosis, associated with the use of OCs. Discontinue OC medication if there is unexplained, sudden or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma.* Long-term continuous administration of either natural or synthetic estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver. Certain synthetic progestogens, none currently contained in OCs, have been noted to increase the incidence of mammary nodules, benign and malignant, in dogs. In humans, three case control studies have reported an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women. One publication reported on the first 21 cases submitted by physicians to a registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the cases found in women without predisposing risk factors for adenocarcinoma of the endometrium (eg, irregular bleeding at the time OCs were first given, polycystic ovaries), nearly all occurred in women who had used a sequential OC. These products are no longer marketed. No evidence has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs. Several studies have found no increase in breast cancer in women taking OCs or estrogens. One study, however, while also noting no overall increased risk of breast cancer in women treated with OCs, found an excess risk in the subgroups of OC users with documented benign breast disease. A reduced occurrence of benign breast tumors in users of OCs has been well documented. In summary, there is at present no confirmed evidence from human studies of an increased risk of cancer associated with OCs. Close clinical surveillance of all women taking OCs is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms should be monitored with particular care if they elect to use OCs. 4. *Hepatic Tumors.* Benign hepatic adenomas have been found to be associated with the use of OCs. One study showed that OC formulations with high hormonal potency were associated with a higher risk than lower potency formulations. Although benign, hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage. This has been reported in short-term as well as long-term users of OCs. Two studies relate risk with duration of use of the contraceptive, the risk being much greater after 4 or more years of OC use. While hepatic adenoma is a rare lesion, it should be considered in women presenting with abdominal pain and tenderness, abdominal mass or shock. A few cases of hepatocellular carcinoma have been reported in women taking OCs. The relationship of these drugs to this type of malignancy is not known at this time. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring.* The use of female sex hormones – both estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. It has been shown that females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been demonstrated to be of the order of 1 in 1,000 exposures or less. Although there is no evidence at the present time that OCs further enhance the risk of developing this type of malignancy, such patients should be monitored with particular care if they elect to use OCs. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether this condition is a precursor of vaginal malignancy. Male children so exposed may develop abnormalities of the urogenital tract. Although similar data are not available with the use of other estrogens, it cannot be presumed that they would not induce similar changes. An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of sex hormones, including OCs, in pregnancy. One case control study has estimated a 4.7-fold increase in risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 in 1,000 live births. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. It is recommended that for any patient who has missed two consecutive periods, pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule, the possibility of pregnancy should be considered at the time of the first missed period, and further use of OCs should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuation of the pregnancy should be discussed in the light of these risks. It is also recommended that women who discontinue OCs with the intent of becoming pregnant use an alternate form of contraception for a period of time before attempting to conceive. Many clinicians recommend 3 months although no precise information is available on which to base this recommendation. The administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy. 6. *Gallbladder Disease.* Studies report an increased risk of surgically confirmed gallbladder disease in users of OCs and estrogens. In one study, an increased risk appeared after 2 years of use and doubled after 4 or 5 years of use. In one of the other studies, an increased risk was apparent between 6 and 12 months of use. 7. *Carbohydrate and Lipid Metabolic Effects.* A decrease in glucose tolerance has been observed in a significant percentage of patients on OCs. For this reason, prediabetic and diabetic patients should be carefully observed while receiving OCs. An increase in triglycerides and total phospholipids has been observed in patients receiving OCs. The clinical significance of this finding remains to be defined. 8. *Elevated Blood Pressure.* An increase in blood pressure has been reported in patients receiving OCs. In some women, hypertension may occur within a few months of beginning OC use. In the first year of use, the prevalence of women with hypertension is low in users and may be no higher than that of a comparable group of nonusers. The prevalence in users increases, however, with longer exposure, and in the fifth year of use is two and a half to three times the reported prevalence in the first year. Age is also strongly correlated with the development of hypertension in OC users. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure when given OCs. Hypertension that develops as a result of taking OCs usually returns to normal after discontinuing the drug. 9. *Headache.* The onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of OCs and evaluation of the cause. 10. *Bleeding Irregularities.* Breakthrough bleeding, spotting and amenorrhea are frequent reasons for patients discontinuing OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, nonfunctional causes should be borne in mind. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy. If pathology has been excluded, time or a change to another formulation may solve the problem. Changing to an OC with a higher estrogen content, while potentially useful in minimizing menstrual irregularity, should be done only if necessary since this may increase the risk of thromboembolic disease. Women with a past history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of OCs. Women with these preexisting problems should be advised of this possibility and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may also occur in women without previous irregularities. 11. *Ectopic Pregnancy.* Ectopic as well as intrauterine pregnancy may occur in contraceptive failures. 12. *Breast-Feeding.* OCs given in the postpartum period may interfere with lactation. There may be a decrease in the quantity and quality of the breast milk. Furthermore, a small fraction of the hormonal agents in OCs has been identified in the milk of mothers receiving these drugs. The effects, if any, on the breast-fed child have not been determined. If feasible, the use of OCs should be deferred until the infant has been weaned. **PRECAUTIONS: General:** 1. A complete medical and family history should be taken prior to the initiation of OCs. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical examination. 2. Under the influence of estrogen-progestogen preparations preexisting uterine leiomyomata may increase in size. 3. Patients with a history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the medication and use an alternative method of contraception in an attempt to determine whether the symptom is drug related. 4. OCs may cause some degree of fluid retention. They should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma, or cardiac or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence of jaundice while receiving OC therapy. If jaundice develops in any patient receiving such drugs, the medication should be discontinued. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution. 7. OC users may have disturbances in normal tryptophan metabolism which may result in a relative pyridoxine deficiency. The clinical significance of this is undetermined. 8. Serum folate levels may be depressed by OC therapy. Since the pregnant woman is predisposed to the development of folate deficiency and the incidence of folate deficiency increases with increasing gestation, it is possible that if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and complications attributed to this deficiency. 9. The pathologist should be advised of OC therapy when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs: a. Increased sulfobromophthalein retention; b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability; c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered; d. Decreased pregnanediol excretion; e. Reduced response to metyrapone test. **INFORMATION FOR THE PATIENT:** See Patient Labeling. **DRUG INTERACTIONS:** Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin. **CARCINOGENESIS, PREGNANCY, NURSING MOTHERS:** See Contraindications and Warnings. **ADVERSE REACTIONS:** An increased risk of the following serious adverse reactions has been associated with the use of OCs: Thrombophlebitis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, cerebral hemorrhage; hypertension, gallbladder disease, benign hepatomas, congenital anomalies. There is evidence of an association between the following conditions and the use of OCs, although additional confirmatory studies are needed: Mesenteric thrombosis; neuro-ocular lesions, eg, retinal thrombosis and optic neuritis. The following adverse reactions have been reported in patients receiving OCs and are believed to be drug related: Nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10 percent or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally: Gastrointestinal symptoms (such as abdominal cramps and bloating); breakthrough bleeding; spotting; change in menstrual flow; dysmenorrhea; amenorrhea during and after treatment; temporary infertility after discontinuance of treatment; edema; chloasma or melasma which may persist; breast changes: tenderness, enlargement and secretion; change in weight (increase or decrease); change in cervical erosion and cervical secretion; possible diminution in lactation when given immediately postpartum; cholestatic jaundice; migraine; increase in size of uterine leiomyomata; rash (allergic); mental depression; reduced tolerance to carbohydrates; vaginal candidiasis; change in corneal curvature (steepening); intolerance to contact lenses. The following adverse reactions have been reported in users of OCs, and the association has been neither confirmed nor refuted: Premenstrual-like syndrome; cataracts; changes in libido; chorea; changes in appetite; cystitis-like syndrome; headache; nervousness; dizziness; hirsutism; loss of scalp hair; erythema multiforme; erythema nodosum; hemorrhagic eruption; vaginitis; porphyria; hemolytic uremic syndrome. **ACUTE OVERDOSE:** Serious effects have not been reported following acute ingestion of large doses of OCs by young children. Overdosage may cause nausea, and withdrawal bleeding may occur in females. **HOW SUPPLIED:** Loestrin **21** 1/20 is available in compacts each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1/20 is available in compacts each containing 21 white tablets and 7 brown tablets. Each white tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills. Loestrin **21** 1.5/30 is available in compacts each containing 21 tablets. Each tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1.5/30 is available in compacts each containing 21 green tablets and 7 brown tablets. Each green tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills.

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Family Planning

Perspectives

ISSN 0014-7354
Volume 19, Number 6, November/December 1987

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Published bimonthly by
The Alan Guttmacher Institute
at 111 Fifth Avenue,
New York, N.Y. 10003.

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Letters from Readers

Immigrants and Adaptation

I cannot resist raising one or two small objections to some of the interpretations in Thomas Espenshade's article "Population Replacement and Immigrant Adaptation: New Issues Facing the West" [**19:**115, 1987]. In discussing possible social problems arising from the shifting geographic origin of immigration to the United States (from Europe to Asia and Latin America), Espenshade quotes Allan Carlson's recent [warnings] about the possibility of "ugly . . . xenophobic reaction." Espenshade then discusses several recent events in California that centered around the requirement of English as the official state language . . . as if those events constituted evidence of such xenophobic reactions. Indeed, the next paragraph moves on to the openly xenophobic "Heidelberg Manifesto," aimed at expelling immigrants from Germany; the author thus suggests that the California and Heidelberg events are both part of a common trend. This may or may not be true as far as the motivations of the persons involved are concerned, but it misses an important point.

The history of the successful adjustment of earlier immigrant groups in the United States makes abundantly clear the crucial importance of the immigrants' acquiring the skills needed to compete in the mainstream economic life of their new community. English is and will remain essential for advanced education, technical and professional employment, geographic mobility and access to the nationwide networks of information, opportunities and options. What learning English does is to give the immigrants' children a better shot at the education, jobs and upward mobility for which their parents presumably came to the United States in the first place. Allowing those children to learn English as a second language means that they will end up speaking English about as well as most urban middle-class Anglo children who have studied French or Spanish can speak those languages—which is to say, not at all.

. . . Allowing immigrants' children to grow up in the United States able to function only in their parents' native tongue means that the children will end up with the same sort of jobs in the same localities as their parents. That may not bother local politicians or community leaders, but it should. . . . From this perspective, the California requirement is pro-immigrant, not xenophobic.

Furthermore, are there really any signs of ugly, xenophobic movements? Surely the California debate is weak stuff compared with the bitter, violent anti-Irish and later anti-Slavic movements of the 19th century. Those movements founded political parties, elected governors and strode heavily on the national political scene. Is anything comparable really likely in the United States today? . . .

Finally, Espenshade recommends that historical studies of immigrant adaptation in the past be undertaken. This is a bit disingenuous since a wealth of such studies exist as part of the specialized literature on immigration history. An excellent introduction to this literature is Thomas Sowell's *Ethnic America* (Basic Books, New York, 1980). Writing from an admittedly conservative viewpoint, Sowell argues that previous immigrant groups adapted and succeeded because (1) there existed a clear set of mainstream economic and social rules that the immigrants could learn; (2) once the immigrants learned the rules, there was opportunity for those willing to work, and work paid off; and (3) the economy was constantly expanding. Sowell also argues that misguided public policies can actually slow down the rate of successful adaptation by immigrants. This is more debatable but is certainly worth thinking about.

Warren C. Robinson
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The Author Replies:
Warren Robinson's letter makes three points: (1) Proposition 63, which was passed by California voters by a three-to-one margin, and which mandated English as the official language of the state of California, represents enlightened public policy and not necessarily anti-immigrant sentiment; (2) there are few, if any, contemporary examples of hostility toward immigrants that rival those from the turn of the century; and (3) adequate historical accounts of the successful adjustment of earlier immigrant groups already exist (for example, in Sowell's *Ethnic America*), whereas I have given readers the impression that research in this area is insufficient. I would like to respond briefly to each of these points.

First, whether the passage of Proposition 63 represents anti-immigrant feelings or pro-immigrant outcomes is really two issues, not one. My view is that a large majority voted for the constitutional amendment because they perceived that the status quo favoring the majority was threatened by the influx of large numbers of non-English-speaking immigrants. At the same time, I agree with Robinson that the acquisition of English-language skills is a factor enabling one to compete successfully in the marketplace, so that Proposition 63 could have the (largely unintended) long-run effect of being beneficial to immigrants. It is not at all clear, however, that immigrants or their children would fail to learn English if a somewhat more laissez-faire policy than Proposition 63 were adopted. David Lopez reports that Hispanics in Los Angeles are learning English almost as quickly as European immigrants did during the height of their mass immigration.* Numerous similar accounts have been cited by Tracy Goodis in a comprehensive review of the lin-

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*D. E. Lopez, "Chicano Language Loyalty in an Urban Setting," *Sociology and Research*, **62:**267, 1978.

guistic aspects of immigrant adaptation.[*]

Second, local newspapers are full of accounts of hostility toward immigrants, and the stories are not confined to California.[†] Surely, we are not witnessing anything comparable to the virulent racism expressed by Kenneth Roberts in the *Saturday Evening Post* in 1920: "If the United States is the melting pot, something is wrong with the heating system, for an inconveniently large portion of the new immigration floats around in unsightly indigestible lumps."[‡] On the other hand, why should we wait to take action to facilitate the incorporation of new immigrant groups into the mainstream until a situation like the one at the beginning of the 20th century develops?

Third, in my original article, I argued that research was needed to address the perception that recent immigrants are not integrating well into U.S. society. This led to the conclusion that additional historical perspective was needed, not for its own sake, but to provide a *comparative* perspective on contemporary processes of immigrant adaptation in the United States and those taking place at the beginning of the 20th century, to assess whether immigrants are having a harder time adjusting in the United States today than they did three-quarters of a century ago. It is the importance of these comparative elements that Robinson's comments seem to miss. Robinson quotes Sowell's reasons why previous immigrant waves were able to adjust to life in the United States. The reasons include the expanding size and diversity of the economy. What one wants to know is whether these conditions exist for today's immigrant groups. Despite the studies to which Robinson refers, I believe it is still fair to claim that systematic empirical work on the comparative strength of structural facilitators of or barriers to immigrant adaptation . . . is still far from telling us whether the traditional processes of assimilation, believed by many to have worked well for immigrants from Europe, are breaking down today.

At the end of his comment, Robinson returns briefly to the main point of my article. If misguided public policy can slow the rate of immigrant adaptation, then, just as surely, informed public policy can accelerate the process. Whether or not measures such as Proposition 63 belong in the arsenal of immigrant policy can be debated. What is not in doubt is that the United States needs to begin to think seriously about a U.S. immigrant policy to complement U.S. immigration policy and to reduce barriers to the smooth transition of immigrants into the mainstream of American life.

Sex Ratios, Women's Status

The "Digest" section of the July/August issue [**19**:167, 1987] carried a short summary of a cross-national analysis (by Scott South and Katherine Trent) of the association between sex ratios and the status of women in a society. That analysis dealt with the hypothesis that the status of women varies inversely with the sex ratio: When there are proportionately few women (a high sex ratio), their status will be low, but when there is a relative surplus of women (a low sex ratio), their status will be high. According to this hypothesis, when women are in short supply, men will tend to keep them under tighter control by . . . prizing virginity until marriage, emphasizing monogamous relationships and placing high values on the roles of mother and homemaker. . . . Fewer nonfamilial options will be available to women, their general status will be low, and they will tend to marry young and to experience higher fertility. Conversely, an "oversupply" of women will lead to greater promiscuity among males. Women, on the other hand, will have more options available to them and will be more likely to develop extrafamilial interests (e.g., education and a career); they will have a relatively higher status in the society, will be less likely to marry, and will experience lower fertility.

I do not dispute the findings of South and Trent regarding the association between sex ratios and women's status and the implications of women's status for marriage and fertility. . . . Rather, I would like to suggest that the observed relationship between sex ratios and women's status may be a self-generating phenomenon. It may well be that the relative shortage of women that leads to a low status for women is itself the result of the low status of women.

As I have suggested elsewhere,[§] when women are [illegible] second-class persons, they are [illegible] receive differential treatment in childhood. Males will be pampered and females will be neglected, and this will be reflected in a significant narrowing of the traditional mortality differential by sex and a resulting relative shortage of women . . . at the adult ages. Conversely, when women are valued as highly as men, they will be treated similarly to men during infancy and childhood, the mortality differential will be wider, and there will a greater relative supply of women . . . at the adult ages.

. . . South and Trent carefully acknowledge that many factors can influence a national sex ratio (e.g., migration patterns and male-female mortality differences). However, I do think that the possibility of women's status being the underlying determinant in this chain of events merits further consideration.

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On the Remedies for Poverty

The July/August issue presented summaries of two fine studies pertinent to the current policy debate about the remedies for poverty: "Adolescent Mothers and Their Children in Later Life," by Frank Furstenberg, Jr., et al. [**19**:142, 1987], and "Single-Parent Families," by Greg Duncan and Willard Rodgers [**19**:171, 1987].

Both articles concluded with a brief discussion of measures that might improve the lives of poor families. Furstenberg and his coauthors noted the importance of policy reforms to increase access to sex education and reproductive health care and to improve assistance for children faring poorly in school. Duncan and Rodgers noted the need for policy reforms focused on labor market problems and transfer programs affecting two-parent families.

Those reforms are crucial, but it is curious that the authors neglected to mention policy changes that would enable single mothers to become economically secure. Duncan and Rodgers offered the only hint that other failures in public policy might be relevant to the discussion of poverty when they observed, "Given current policies, the economic well-being of mothers and children is strikingly dependent on marriage and remarriage." One might paraphrase this by saying that without public policies ensuring economic justice for women, mothers without a male provider are likel

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[*] T. A. Goodis, "Adaptation Processes of Recent Immigrants to the United States: A Review of Demographic and Social Aspects," Policy Discussion Paper 86-3, Urban Institute, Washington, D.C., Dec. 1986.

[†] "Killing and School Plans Stir Tensions in Lowell," *New York Times*, Oct. 25, 1987, p. 43.

[‡] R. J. Simon, *Public Opinion and the Immigrant: Print Media Coverage, 1880–1980*, D.C. Heath, Lexington Books, Lexington, Mass., 1985.

[§] K. A. Laidlaw, M. D. Pugh and E. G. Stockwell, "The Status of Women as a Factor in Population Growth in Less Developed Countries," *Sociological Focus*, **13**:67, 1980.

Adolescent Fathers in the United States: Their Initial Living Arrangements, Marital Experience and Educational Outcomes

By William Marsiglio

Summary

Data from a nationally representative longitudinal survey show that seven percent of young males aged 20–27 in 1984 had fathered a child while they were teenagers, more than three-quarters of them nonmaritally. One-third of those who were responsible for a nonmarital conception married within 12 months of conception, and half of all of the young men lived with their child shortly after the child's birth. Overall, young black men were more likely to have been responsible for a nonmarital first birth than were males of other racial backgrounds, and only 15 percent of black teenagers lived with their first child, compared with 48 percent of Hispanics, 58 percent of disadvantaged whites and 77 percent of nondisadvantaged whites. Multivariate analyses indicated that only black or Hispanic youths and those who fathered a child at age 16 or younger were significantly less likely to have lived with their first child; those who were raised Catholic were more likely to have done so. Further analyses revealed that living in a rural area, being relatively older at the child's birth, having been raised Catholic and having lived with both parents at age 14 were associated with an above average probability that white teenage fathers would live with their child, at least initially. However, none of the variables in the model were significant for blacks.

Teenage fathers, regardless of their marital status at conception or age at first birth, were much more likely to have been high school dropouts than were other male teenagers. Those with a maritally conceived child had a particularly high drop-out rate—almost 62 percent. Among teenage fathers responsible for a nonmaritally conceived first birth that occurred before they received their diploma or GED certificate or they left school for the last time, those living with their partner shortly after the child's birth were less likely to have completed high school by 1984 than were those not living with their child. However, a multivariate analysis revealed that a teenage father's living with his child shortly after birth was not significantly related to his completion of high school, while being black was positively associated. The racial difference may mean that norms or social and familial supports are more influential for young black males in minimizing the possible deleterious effects of teenage fatherhood on schooling, while so few black males lived with their child that any assessment of this question is extremely difficult. Finally, among a subsample of young males who were 14 or 15 years of age at the time of the 1979 survey and had not yet fathered a child, those who were eventually responsible for a nonmaritally conceived first birth had not completed a lower mean grade level in 1979 than had those who did not become fathers. On the other hand, those who became teenage fathers had anticipated completing significantly fewer years of schooling, and were found to have done so by the 1984 survey.

"Fifty percent of this sample of young men lived with their child shortly after the child's birth, and 22 percent of those who lived with their child were also living with one of both of their parents or in-laws. . . ."

Introduction

Concern over adolescent pregnancy and childbearing has generated a great deal of research over the past decade,[1] much of it concentrated on how adolescent pregnancy and parenthood affect young women and, to a lesser extent, their children. Because of the difficulty of sampling teenage fathers, most of the scant research that has focused on teenage fatherhood has generally been exploratory in nature and based on small, nonrepresentative samples.[2] Consequently, we do not have a clear description of the young men who are responsible for nonmaritally or maritally conceived first births, and we know virtually nothing about their decision to live with their child initially or their patterns of high school completion.

It is generally assumed that the consequences of teenage fertility are more direct and pronounced for young women than they are for young men.[3] Particularly since child-support obligations for young fathers are seldom enforced, the consequences of teenage fatherhood often are contingent upon the young man's willingness or opportunity to assume a degree of responsibility in raising his child.[4] In contemporary American society, particularly among whites, the young man's assumption of paternal responsibility generally entails making a commitment to the mother, either by marrying her or by living with her.

Young males who have fathered a child or who expect to do so must contemplate decisions concerning marriage and living arrangements that may have a wide range of consequences for father, mother and child alike.[5] Although these decisions are

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often quite complicated and may involve parties other than the young man and his partner (e.g., his or the young mother's parents), this article emphasizes the male's perspective. Researchers have seldom examined the young man's role in the decision-making process or how young men are affected by their assumption of the social role of father.

The decision to live with the mother and child, which is a key measure used in this article, does not take into account the possibility that a young father may play an active role in caring for his child even if he does not live with the mother.* Some young fathers are denied an opportunity to live with their child from the outset, especially if the child's mother retains custody and chooses (or is forced) to live apart from the child's father. However, examining living arrangements serves a useful purpose: It identifies a group of young fathers who were able and seemingly willing to make an initial commitment to their child and partner and permits an examination of the association between early fatherhood and patterns of high school completion. In addition, looking simply at whether a young father chooses to live with his child's mother helps to circumvent the middle-class (and perhaps race-related) bias that marriage is the only way in which a young male can commit himself to his child or his partner. Assuming the responsibilities of fatherhood by living with a child without marrying the child's mother is likely to have consequences similar to those related to marriage.

There are large subcultural variations in the tendency to legitimate unplanned births through marriage. Teenage males socialized within the black subculture, for example, are more likely than youth from other racial or ethnic groups to have children out of wedlock and to live apart from them. Even though out-of-wedlock births are declining slightly among blacks and are on the rise among whites, black women 15–19 years of age still have about four times as many out-of-wedlock births as do comparable whites.[6]

Racial differences in the tendency to have out-of-wedlock births may reflect young mothers' willingness or ability to marry or live with their partners. When male high school students were asked what they would do if they impregnated a girlfriend whom they had been dating for a year, blacks and whites were about equally likely to say that they would be willing to live with their partner and child.[7] Although black teenagers of either sex tend to have more favorable attitudes toward childbearing than their white counterparts[8] and many young black males may be interested in living with their child and the child's mother, a young man's disadvantaged status may discourage his partner (and her parent or parents) from pursuing such an arrangement. A young male may himself believe that his partner and child would be better served by not living with him, given his poor economic circumstances. Nevertheless, contrary to popular myth, a number of studies have shown that many low-income young black males continue to show an interest in their child and the child's mother, even if they are not married to or living with her.[9]

Living with his partner or marrying her in response to a teenage pregnancy may affect a young male's schooling and employment prospects; on the other hand, his current educational and employment circumstances and motivations may influence the likelihood that a young couple will either live together or marry, as well as whether they will complete their education. One theoretically relevant causal issue, then, particularly since males do not experience the physical side effects of pregnancy and childbirth, is whether or not a teenager's assumption of the social role of father curtails his educational attainment.

The authors of a previous study have observed that "rather than *causing* a reduction in educational aspirations, early parenthood may simply reflect the realization of other plans that were not linked with further education. Early parents, who are not part of the 'college-going crowd' in high school and who do not share the aims and criteria for success of many of their classmates, appear to seek other goals in life—goals that are more compatible with early marriage and parenthood. The stereotypical view of teenage parenthood as invariably interfering with educational plans clearly must be qualified."[10]

The preceding quotation highlights one important difficulty with doing research in this area: It may be inappropriate for researchers to define beforehand a given level of education as being desirable. Moreover, for causality to be demonstrated, it is necessary to measure educational and work expectations prior to a pregnancy and follow respondents over time to observe whether educational attainment is hindered. Likewise, it is useful to identify whether the pregnancy or birth occurred while the young father was actively enrolled in high school, or at least before he had received formal certification for completing his secondary schooling.

One of the few studies of teenage fathers that used national data attempted to determine how the fertility of young men affected their educational attainment.[11] Although it was insightful in certain ways, the study was restricted to a sample of high school seniors (thereby excluding dropouts), focused on parenthood among older teenagers, did not distinguish between biological paternity and social fatherhood and dealt primarily with young women. The authors' major conclusion was that teenage fathers in this sample tended to have lower educational aspirations and attainment and were less satisfied with their career progress than were their childless peers, but that the effects of early parenthood net of marriage were quite small.

Another study, which used nationally representative data to analyze the consequences of the timing of marriage on educational outcomes for teenage parents (also focusing primarily on young women), found that adolescent males who married after their child had been conceived but before the child was born were less likely to have enrolled in school after their child's birth than were those who married after childbirth or who fathered a child after they were married.[12] When they restricted one of their analyses to a sample of white males, the investigators also found no evidence to support the notion that young men with high educational expectations before conception were more inclined to delay marriage than were males with lower educational expectations.

Research Design

In this article, data from the National Longitudinal Survey of Labor Market Experience of Youth (NLSY) are used to paint a social and demographic portrait of the living arrangements and educational attainment of adolescent fathers. The NLSY is a nationally representative panel survey that included 12,686 male and female respondents (with an oversampling of blacks, Hispanics and economically disadvantaged whites). These subgroups can be weighted to represent a national cross-section of American youth aged 14–21 as of January 1, 1979. All percentages reported in this article are weighted statistics, but reported sample sizes reflect actual frequency counts.

NLSY participants have been inter-

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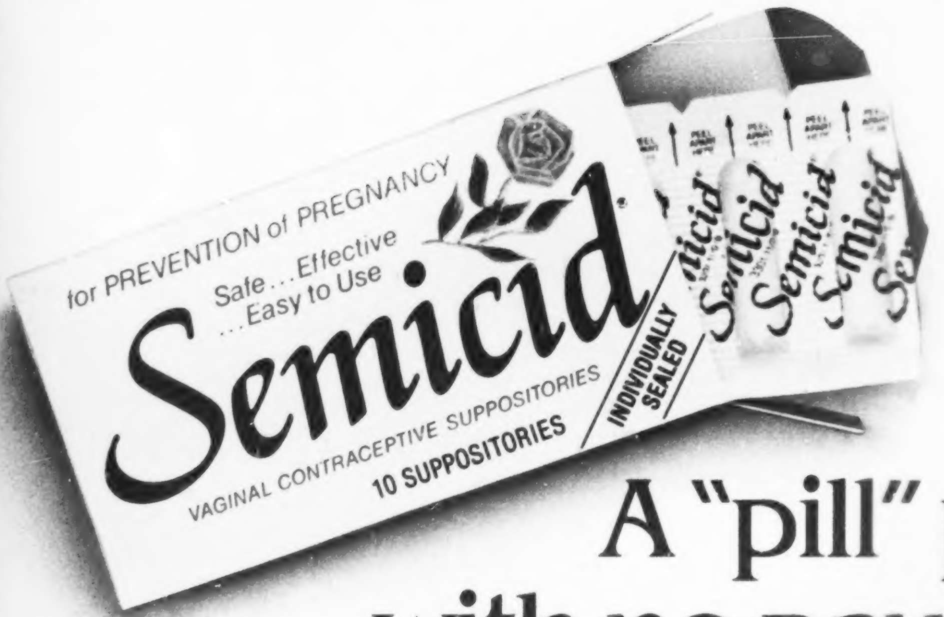
*Living arrangements are examined without regard to marriage because they represent salient phenomena of family formation and structure. It is not assumed that any particular form of living arrangements is inherently good or bad for the adolescent father or his partner or child.



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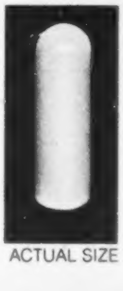

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viewed during the first five months of each year from 1979 through 1987. Every attempt has been made to interview each respondent at the same time each year. Over 95 percent of the original sample of young men were interviewed in 1984 (a total of 6,054). A more detailed description of the sample, panel design and interview schedule can be found elsewhere.[11] An important feature of the NLSY since its inception in 1979 has been the annual household record file, which includes information on the respondent's relationship to other members of the household.

A retrospective fertility history for male respondents was collected in 1982 and has been updated in each of the subsequent survey rounds. The usefulness of these data is somewhat limited, however, because of the ad hoc manner in which the data were added to the survey and because only a small amount of pertinent information was gathered. In addition, the age distribution of the NLSY sample (14–22 years of age in 1979, 17–25 in 1982) increases the difficulties associated with using these fertility data as a basis for research on male adolescent fatherhood. Nevertheless, the NLSY is perhaps the best available nationally representative data source on adolescent male fertility and living arrangements.

Young men were classified as teenage fathers if they reported by the time of the 1984 survey that they were 19 years of age or younger when their first child was born. Births in which the conception occurred 1–2 months prior to marriage or any time after marriage were considered maritally conceived; all others were categorized as nonmaritally conceived.*

Household record information was used to create a dichotomous living-arrangement variable† that differentiated between teenage fathers who lived with their child at the first observation point after birth and those who did not. In cases where a respondent was not interviewed immediately following his first child's birth, data from the next survey in which the respondent was interviewed were used. This appears to be a reasonable approach, in that 93 percent of all teenage fathers in the sample were interviewed in all six years and 98 percent were interviewed in at least five.

If a teenage birth is actually a disruptive event in a young man's life, then he may drop out of school temporarily but return later for a high school diploma, or study to earn high school certification through the General Educational Development program (GED).‡ In order to make maximum use of the GED data and allow adequate time for the respondents to have completed their high school education, analyses here have been restricted to young males who were at least 20 years old as of the 1984 survey.

To determine the relative timing of fertility events and high school attendance and completion, dates (by year and month) for a young male's last school attendance and his receipt of high school credentials (where applicable) were compared with similar dates for the birth of the teenage father's first child. Separate variables were created for diploma and GED recipients and for those who had not yet received certification for high school by the time of the 1984 survey, to distinguish the teenage father whose child was born prior to or in the same year and month as when he left school or received his academic credentials from the father whose child was born after this date. In addition, a date for knowledge of conception was estimated by subtracting seven months from the birth date and then comparing that to the schooling date. (Precise definitions of the background factors used in this study can be found in the Appendix.)

Quality of Data

The longitudinal nature of the survey sample provides an opportunity to assess the accuracy of young males' fertility reporting over time. One evaluation of the quality of the NLSY fertility data, which examined discrepancies (such as reporting inconsistencies) in the fertility reports of survey participants, found, not surprisingly, that women reported their birth histories much more accurately than did men.[14] Overall, 47 percent of the male respondents who ever reported a live birth as of the time of the 1981 survey had at least one discrepancy in their reports, compared with 14 percent of mothers. Misreporting was most pronounced for fathers not living with their child. After resolution of as many inconsistencies as possible, the discrepancy rate among the men (28 percent) remained much higher than that among the women (three percent). The researcher speculated that the higher discrepancy rate among fathers may have been due in part to the fact that a higher proportion of fathers than of mothers were not living with their children, and would therefore be less likely to know specific birth dates.

These findings suggest that the subsample of teenage fathers may be biased to some extent. Males who were less active in assuming the responsibilities of fatherhood may have been less likely to acknowledge their fertility and more likely, therefore, to have been misclassified. Misreport-

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*It has been assumed that the vast majority of young fathers who married during the first or second month following their child's conception did not know that their partner was pregnant when they decided to marry and therefore did not marry to legitimate an unplanned pregnancy. Additionally, a young man was considered to have married within one year of conception if he married at any time during the 12 months after the point at which he can be presumed to have known that conception had occurred (i.e., three months after the actual estimated date of conception).

†The living-arrangement variable is potentially misleading, however, in that 1979 data had to be used for all respondents who fathered a child prior to the 1979 survey. Since retrospective data on living arrangements were not collected prior to 1979, the living-arrangement variable therefore represents in many cases the living situation of teenage fathers at least several years after the child's birth. About 65 percent of the 555 teenage fathers who were 20–27 years old at the time of the 1984 survey were responsible for nonmaritally conceived first births occurring between 1978 and 1984. The cases of respondents whose child was born during 1978 were not considered to be problematic because most initially had been surveyed in the first five months of 1979. However, in order to standardize the living-arrangement variable and ensure its validity, the 148 cases in which the teenage father's child was born between 1969 and 1977 have been excluded from analyses that used this variable.

‡The GED program tests an individual's competence in mathematics, social studies, science and reading and writing skills at the high school level and issues high school equivalency diplomas or certificates to those who receive satisfactory test scores. Most employers, training programs and universities accept GED certificates in the same manner as they do regular diplomas. (See: R. M. Cervero, *A National Survey of GED Test Candidates: Preparation, Performance, and 18-Month Outcomes*, Educational Resources Information Center, National Institute of Education, U. S. Department of Education, Washington, D.C., 1983; C. C. Swarm, "Three Studies of General Educational Development [GED] Students—1979–1981," Educational Resources Information Center, Washington, D.C., 1981; and R. O. Ulin, "Equivalent to What? GED High School Equivalency Test," *English Journal*, 71:21, 1982.) However, a recent national study of 17–24-year-olds found that the wages associated with GED participation were considerably smaller than those for a regular diploma. (See W. R. Morgan, "The High School Dropout in an Overeducated Society," in P. Baker et al., eds., *Pathways to the Future IV: A Final Report on the National Longitudinal Surveys of Youth Labor Market Experience in 1982*, Center for Human Resource Research, Columbus, Ohio, 1984, p. 215). GED participants are likely to be older than the typical group of students who receive their diplomas in the spring of their senior year. Data gathered by the GED Testing Service show that the mean age of individuals taking the test in 1980 was 25.7, with 33 percent of them under age 20. (See: A. C. Malizio and D. R. Whitney, *Who Takes the GED Tests?* American Council on Education, Washington, D.C., 1981.) The mean age for GED participants in the present sample of males aged 20–27 was 19.5. Separate data are not available by sex or for those who passed the test. GED certificates constituted 14.3 percent of all high school credentials issued in 1981, and one study projected that based on current demographic trends this percentage should increase to at least 20 percent by 1990. (See: Cervero, 1983, above.)

Table 1. Percentage distribution of 20–27-year-old male participants in the National Longitudinal Survey of Labor Market Experience of Youth (NLSY), by background characteristics, according to whether they had fathered a child as teenagers and whether such conceptions had taken place within or outside of marriage

Characteristic	Total sample		Did not father child as teenager		Fathered child as teenager					
					All		Nonmarital		Marital	
	N	%	N	%	N	%	N	%	N	%
Total	**5,550**	**100.0**	**4,995**	**100.0**	**555**	**100.0**	**446**	**100.0**	**109**	**100.0**
Age at 1984 survey										
20	759	14.2	680	14.2	79	13.9	55	12.4	24	19.8
21	761	13.2	676	13.1	85	13.7	70	13.0	15	16.4
22	723	13.6	646	13.7	77	13.2	68	15.0	9	6.0
23	791	14.0	715	14.1	76	12.7	62	11.8	14	16.2
24	784	13.9	697	13.6	87	17.8	73	20.3	14	8.0
25	794	14.2	724	14.2	70	14.6	56	13.4	14	19.3
26	767	13.6	696	13.6	71	12.9	52	12.6	19	14.2
27	171	3.4	161	3.5	10	1.1	10	1.4	0	0.0
Race/ethnicity and poverty status (whites)										
Hispanic	858	6.2	761	5.9	97	9.9	67	8.0	30	17.4
Black	1,402	13.6	1,188	12.4	214	29.2	203	35.3	11	5.4
White, not poor	2,475	73.8	2,338	75.6	137	49.7	96	46.1	41	64.1
White, poor	815	6.4	708	6.1	107	11.1	80	10.7	27	13.1
Region of residence at age 14										
Northeast	1,081	21.4	990	21.7	91	16.4	79	18.1	12	9.9
North Central	1,436	31.4	1,298	31.4	138	30.9	116	32.4	22	24.8
South	1,922	29.8	1,711	29.4	211	35.1	158	30.6	53	52.6
West	902	14.7	804	14.6	98	15.6	81	17.0	17	10.2
Other	30	0.2	27	0.2	3	0.2	1	0.1	2	0.6
No answer	179	2.6	165	2.7	14	1.8	11	1.8	3	1.9
Urban-rural residence at age 14										
Urban	4,351	77.7	3,902	77.8	449	77.1	364	77.3	85	76.6
Rural	1,181	22.0	1,080	22.0	107	21.6	77	21.1	24	23.4
No answer	18	0.3	13	0.2	5	1.3	5	1.7	0	0.0
Religion as child										
Catholic	1,811	32.3	1,671	32.7	140	26.3	107	25.5	33	29.5
Protestant (fund.)	1,859	27.5	1,595	26.2	264	44.7	220	45.1	44	42.9
Protestant (other)	1,249	27.8	1,166	28.6	83	16.8	63	16.0	20	20.0
Other	345	7.5	316	7.7	29	5.9	22	6.0	7	5.5
None	257	4.6	220	4.4	37	6.2	32	7.2	5	2.1
No answer	29	0.5	27	0.3	2	0.2	2	0.2	0	0.0
Lived with 2 parents or stepparents at age 14										
Yes	4,241	83.0	3,872	83.8	369	71.9	284	69.3	85	81.9
No	1,300	16.8	1,116	16.1	184	27.1	160	29.4	24	18.1
No answer	9	0.2	7	0.1	2	1.1	2	1.3	0	0.0
Father's education (in yrs.)										
<12	2,011	29.4	1,756	28.5	255	41.9	197	39.8	58	50.1
12	1,615	32.3	1,486	32.6	129	27.6	108	29.4	21	20.2
13–15	445	10.5	420	10.8	25	6.5	18	5.6	7	10.1
≥16	698	17.8	675	18.7	23	6.2	20	7.0	3	3.1
No answer	781	9.9	658	9.4	123	17.8	103	18.2	20	16.5
Mother's education (in yrs.)										
<12	2,113	28.2	1,825	26.9	288	46.1	222	42.7	66	59.6
12	2,142	45.3	1,976	46.1	166	35.5	140	39.7	26	19.1
13–15	486	10.6	457	11.0	29	5.2	24	4.9	5	6.5
≥16	413	10.2	400	10.7	13	2.6	13	3.3	0	0.0
No answer	396	5.7	337	5.3	59	10.6	47	9.5	12	14.8
Age at fatherhood										
11–16	na	na	na	na	66	10.1	66	12.7	0	0.0
17	na	na	na	na	85	15.8	76	18.3	9	5.8
18	na	na	na	na	181	30.6	158	32.8	23	22.1
19	na	na	na	na	223	43.5	146	36.2	77	72.0

Notes: In this and subsequent tables, frequencies are unweighted; in Tables 2 and 5, percentages are weighted, and distributions do not add to 100 percent in all cases because of rounding. In this and subsequent tables, na = not applicable.

ing of the child's correct birth date may have also been more common among fathers who were less involved with their children, but such discrepancies are probably less systematic than the failure to report a birth altogether. Consequently, the subsample of teenage fathers, particularly when it is restricted to those whose child was conceived nonmaritally, may be biased toward young fathers whose degree of involvement in fatherhood is above average. Thus, caution is warranted when generalizing from these data. At the same time, however, it can be argued that these data are more reliable than cross-sectional data, since problems of misreporting were resolved among 41 percent of the respondents whose records were inconsistent.

Background Characteristics

Throughout this article, reported frequencies are unweighted, and percentages are weighted. Of the 6,054 males interviewed in both 1979 and 1984, 582 had fathered their first child before they had turned 20, and in 459 cases, the child had been conceived nonmaritally. As of the 1984 survey date, 5,550 male respondents were 20–27 years of age, 555 had had their first child before age 20, and 446 of these births had been nonmaritally conceived. Therefore, nearly 78 percent of the teenage fathers who were 20–27 years old in 1984 were responsible for a nonmaritally conceived first child. However, 32 percent married within 12 months of conception, while 20 percent were already married prior to or around the time of their first child's conception.

Of the 446 teenage fathers responsible for a nonmaritally conceived first child, 298 had become fathers sometime between 1978 and 1984. The remaining 148 teenage fathers reported that their first child had been born in 1977 or earlier; these fathers were disproportionately young: Fifty-one percent had become fathers when they were 17 or younger, compared with only 20 percent of the males whose first child was born in 1978 or later. Consequently, analyses undertaken in this article that rely on the living-arrangement variable are based on a somewhat older than average sample of teenage fathers. In addition, this sample had about six percent fewer blacks than the group of teenage fathers whose first child was born before 1978. Fifty percent of this sample of young men lived with their child shortly after the child's birth, and 22 percent of those who lived with their child were also living with one or both of their parents or in-laws at the first observation point.

In the subsequent analyses, tabular data on high school completion patterns of

Table 2. Percentage of male NLSY participants who had a child as a teenager, by marital status at conception and age at first birth, according to race/ethnicity and poverty status (among whites)

Marital status and age	Total	Race/ethnicity			
		Hispanic	Black	White	
				Not poor	Poor
	(N= 5,550)	(N= 858)	(N= 1,402)	(N= 2,475)	(N= 815)
Total	**6.8**	**10.9**	**14.8**	**4.6**	**11.9**
Nonmarital	5.5	7.0	14.2	3.4	9.1
11–17	1.7	2.6	5.8	0.7	3.4
18–19	3.8	4.4	8.4	2.7	5.7
Marital	1.3	3.9	0.6	1.2	2.8

young fathers are restricted to the young men who were 20–27 years of age at the 1984 survey. When school completion patterns are discussed for those who lived with their nonmaritally conceived first child and for those who did not, these patterns represent the experience only of the 298 teenage fathers whose child was born after 1977. This restricted sample is also used in the multivariate analyses. In addition, a larger sample of 1,253 males who were 14 or 15 years of age in 1979 is analyzed in order to address (to the extent possible) the impact of educational expectations and the number of years of schooling completed prior to the pregnancy. Sixty-one of the young men who had a child after the 1979 survey were unmarried teenagers when they conceived that child.

Table 1 summarizes the background characteristics of the total NLSY sample, of the males who fathered their first child when they were at least 20 years of age or who had not yet done so by 1984, of all teenage fathers, of teenage fathers whose first child was nonmaritally conceived and of teenage fathers whose first child was maritally conceived. Relatively speaking, the data show quite clearly that young black men were much more likely to have been responsible for a nonmarital pregnancy resulting in a first birth than were males of other racial backgrounds: Only 13.6 percent of the overall sample of males was black, compared with 35.3 percent of the young fathers who were responsible for a nonmarital conception. Likewise, compared with the overall sample, males who had not lived with two parents at age 14 were overrepresented in the subsample of teenage fathers, as were those with a fundamentalist Protestant background. In addition, young fathers whose first child was nonmaritally conceived were more likely than those who were not responsible for a teenage birth to have parents who had not completed high school, and were less likely to have college-educated parents.

Race, Age and Marital Status

Table 2 shows the percentage of 20–27-year-old males who had a nonmarital or marital birth as teenagers, analyzed by race or ethnicity and by poverty status (among whites only; see Appendix for rationale). Overall, 6.8 percent of young males had a child while they were teenagers, and 5.5 percent had a nonmaritally conceived first child. If we assume that nonmarital conceptions were unplanned, these results suggest that at least 80 percent of the first births to teenage fathers were unplanned. About 25 percent of all teenage births were nonmarital conceptions by males who were aged 17 or younger at childbirth. Another 56 percent were nonmaritally fathered by males 18–19 years of age at the time of childbirth, and only about 19 percent of first births were fathered by adolescent males who were married at the time of conception.

While blacks were three times more likely than nondisadvantaged whites to have fathered a child as a teenager (14.8 percent compared with 4.6 percent), they were only slightly more likely to have done so than were poor whites (who constituted about eight percent of the white sample) or Hispanics (11.9 percent and 10.9 percent, respectively). Each of these comparisons was statistically significant ($p<0.01$). These patterns between blacks and other young men were more pronounced when nonmarital conceptions only were considered. Whereas 14.2 percent of black males fathered a first child nonmaritally, only 3.4 percent of nondisadvantaged whites, 9.1 percent of poor whites and 7.0 percent of Hispanics did so.

This general pattern can also be observed when attention is focused on the 11–17-year-old fathers of nonmaritally conceived children: In this age-group, 5.8 percent of black males had fathered a nonmaritally conceived child; they were significantly more likely to have done so than were nondisadvantaged whites (0.7, $p<0.01$) or Hispanics (2.6, $p<0.05$). Although blacks in this age-group were somewhat more likely to have fathered a child nonmaritally than were poor whites (3.4 percent), the difference was not statistically significant. Black males were least likely to have had a marital birth during their teenage years (0.6 percent)—significantly less likely than were Hispanics or poor whites (3.9 percent and 2.8 percent, respectively, $p<0.01$).

It is also noteworthy that nearly three-

Table 3. Among teenage fathers participating in the NLSY who were 20–27 years of age at the time of their 1984 survey, regression models for the likelihood that they were living with their nonmaritally conceived child at the first observation point after the child's birth and that they would marry their partner within 12 months of conception

Variable	Model			
	Living with child		Married within 12 months of conception	
	b	Standard error	b	Standard error
Race/ethnicity and poverty status				
Hispanic	–0.347**	0.121	–0.377**	0.116
Black	–0.505**	0.078	–0.546**	0.075
Poor white	–0.133	0.096	–0.052	0.092
Lived in South at age 14	0.046	0.071	0.062	0.068
Lived in urban area at age 14	–0.113	0.068	–0.135*	0.066
Raised Catholic	0.146*	0.072	0.211**	0.069
Religious attendance in past yr. (asked in 1979)				
Several times per yr. or not at all	0.101	0.073	0.017	0.070
1–3 times per mo.	0.052	0.086	–0.063	0.082
≥ Once per wk. (reference category)	–	–	–	–
Parental education				
<12 yrs.	–0.059	0.064	–0.092	0.061
12 yrs. (reference category)	–	–	–	–
>12 yrs.	0.037	0.085	–0.083	0.082
Lived with two parents at age 14	0.065	0.067	0.042	0.064
Fathered child at ages 11–16	–0.209*	0.099	–0.141	0.095
Baby after graduation	0.059	0.061	0.127*	0.059
Intercept	0.659	na	0.705	na
Adjusted R^2	0.317	na	0.372	na
F	9.514**	na	11.896**	na
N	239	na	239	na

*p<0.05. **p<0.01.

Table 4. Among white teenage fathers participating in the NLSY who were 20–27 years of age at the time of their 1984 survey, regression models for the likelihood that they were living with their nonmaritally conceived child at the first observation point after the child's birth and that they had married their partner within 12 months of conception

Variable	Model			
	Living with child		Married within 12 months of conception	
	b	Standard error	b	Standard error
Lived in South at age 14	0.072	0.153	0.060	0.161
Lived in urban area at age 14	–0.212*	0.096	–0.240*	0.101
Raised Catholic	0.193*	0.095	0.261**	0.100
Religious attendance in past year (asked in 1979)				
Several times per yr. or not at all	0.118	0.121	0.044	0.128
1–3 times per mo.	0.043	0.152	–0.085	0.160
≥ once per wk. (reference category)	–	–	–	–
Parental education				
<12 yrs.	0.008	0.113	–0.073	0.119
12 yrs. (reference category)	–	–	–	–
>12 yrs.	0.045	0.121	–0.078	0.127
Lived with two parents at age 14	0.319**	0.123	0.061	0.129
Fathered child at ages 11–16	–0.412*	0.189	–0.323	0.200
Baby after graduation	0.106	0.098	0.184	0.103
Intercept	0.432	na	0.703	na
Adjusted R^2	0.141	na	0.110	na
F	2.640**	na	2.240*	na
N	100	na	100	na

*p<0.05. **p<0.01.

quarters of the youths were 18 or 19 at the time their first child was born (see Table 1). Less than two percent of the entire sample had conceived a child, either nonmaritally or maritally, before age 18. Not only were blacks more likely to have been teenage fathers than were other adolescents, they also were more likely to have done so at younger ages: Nearly 23 percent of black teenage fathers in this sample were 11–16 years old when their nonmaritally conceived first child was born, compared with 6.2 percent among nondisadvantaged whites, 11.1 percent among disadvantaged whites and 9.1 percent among Hispanics (data not shown in table).

Living Arrangements And Marriage Patterns

Bivariate and multivariate analyses were conducted to determine what factors are related to the propensity of young fathers to either marry or live with the mother of their nonmaritally conceived first child.* The bivariate analyses highlighted the tendency of black males not to marry or live with the mother of their nonmaritally conceived first child: Only 15 percent of black teenagers lived with their first child, compared with 48 percent of Hispanics, 77 percent of nondisadvantaged whites and 58 percent of poor whites. (Each differential was statistically significant at p<0.01.)

In order to better determine the influence of such factors as parental education, number of parents in the teenager's family, religious background and urban residence, independent of racial influences, multivariate analyses were performed using the sample of fathers responsible for nonmaritally conceived first births. (Ordinary least-squares regressions and the more appropriate logit analyses were performed on the dichotomous dependent variables. Since the substantive results of these techniques were very similar, the regression results are reported here because they are more readily interpretable. The variables used in the regression analysis are described in the Appendix.)

These analyses indicated that only a few variables were significantly related to the initial living arrangements of young fathers (see Table 3, see page 245). Being black or Hispanic or having fathered a child at age 16 or younger were associated with a significantly lowered probability that the teenage father lived with his first child. Having been raised Catholic was related to a significantly higher probability of living with the child. One surprising finding was that the variable differentiating births that occurred when the father was in school or out of school was not significantly related to the respondents' living arrangements: A teenage father whose child was born after he had graduated or had left school was no more or less likely to have lived with his child than was a father whose child was born before he had graduated or had dropped out of school. (This finding should be interpreted cautiously, however, because the timing information for many respondents was not ideal, particularly for dropouts and GED recipients.†)

In the model estimating the chance that the young father would marry within 12 months of the child's conception (second half of Table 3), being black or Hispanic and having lived in an urban area at age 14 were negatively related to the likelihood of marriage, while having been raised Catholic and having had the baby after high school graduation were positively related. Unlike the case of the living-arrangement model, having fathered a child at or before age 16 was not a significant predictor of the propensity to marry after a nonmarital conception.‡

In a separate step-wise regression analysis, being black accounted for about 75 percent of the total variance explained by the set of independent variables (results not shown). In the context of the measured variables in this research, then, being black is clearly the most significant predictor of initial living arrangements for young fathers, while the remaining variables are of limited predictive value.

Since race is an important predictor of initial living arrangements and marriage

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*Before these analyses were conducted, consideration was given to conducting supplemental analyses focused directly on the experiences of the young fathers who committed themselves initially to living with their partner and child. Although the initial decision to live together is obviously very important and perhaps traumatic for many young men and women, the young father's decision whether to *remain* with his partner and child may be equally significant. The transitory nature of teenage marriages is well documented. (See: S. G. Kellam et al., "The Long-Term Evolution of the Family Structure of Teenage and Older Mothers," *Journal of Marriage and the Family*, **44**:539, 1982; and K. A. Moore and L. Waite, "Marital Dissolution, Early Motherhood and Early Marriage," *Social Forces*, **60**:20, 1981.) Thus, the experiences of young fathers who not only had lived with their partner and child initially but who had also lived with them for at least a couple of years were examined. The NLSY data were not specifically designed to consider issues pertinent to these kinds of arrangements, so the ability of these data to characterize or examine this group of young fathers was limited. Overall, 87.8 percent of young fathers who lived with their child at the initial observation point after the child's birth were also living with the child at the next observation date. Given that the unweighted sample was small (N=97) and that there were so few young fathers who were not living with their child, these two groups of teenage fathers could not be compared in any detail. Analyses of living arrangements therefore had to be limited to the first observation point after the child's birth.

†These analyses were also performed without the variable identifying the timing of fertility relative to schooling, since 33 cases were omitted because of missing values. The substantive results were not altered.

‡A supplemental analysis was conducted of young fathers who did not marry within the 12 months after conception to determine whether certain background factors significantly predicted the probability that the young man would live with his child. None of the variables were statistically significant predictors.

patterns for young fathers, separate regression models were estimated for whites and for blacks to assess possible interactions associated with race. (Unfortunately, there were too few Hispanic and poor white adolescent fathers in the NLSY to examine these groups individually.) The models presented in Table 4 are for whites only, since none of the variables were significant for blacks. The models are identical to those of the previous analysis, except that the dummy variables for race were eliminated.

For white teenage fathers, having been raised Catholic, having lived with two parents, having lived in a rural area and having had a child at ages 17–19 were associated with a significantly greater likelihood of living with their child. As for the young fathers' propensity to marry within a year of conception, those who had lived in a rural area, who had been raised Catholic and who had fathered the baby after graduation were more likely to have done so (although the last factor was only marginally significant, $p<0.10$). It is surprising that none of the variables were significant for blacks; this would suggest that unmeasured factors are responsible for the strength of the race variable in the earlier analyses of the entire sample.

Table 5. Percentage distribution of 20–27-year-old male participants in the 1984 NLSY survey, by high school completion status, according to fertility experience

Fertility experience	N	High school completion status					
		Graduated				Dropout as of 1984 survey	Total
		All	GED before age 20	Diploma before age 20	GED or diploma at age ≥20		
Total	**5,381**	**84.1**	**4.3**	**75.8**	**4.0**	**16.0**	**100.0**
First birth at age 11–17, conceived nonmaritally	136	59.4	11.3	39.6	8.5	40.7	100.0
First birth at age 18–19, conceived nonmaritally	288	65.0	3.7	52.6	8.7	35.1	100.0
First birth at age 11–19, conceived maritally	107	38.6	10.4	21.0	7.2	61.5	100.0
None or first birth conceived at age ≥20	4,850	86.0	4.1	78.2	3.7	14.1	100.0

Note: Graduation status could not be determined for a small percentage of cases; these were omitted from the table. The background characteristics of the omitted cases were similar to those of the overall sample.

High School Completion

In addition to analyzing the relationship between sociodemographic variables and initial living arrangements and marital patterns of young fathers, it is useful to consider the high school completion patterns of teenage fathers (those who were responsible both for nonmarital and for marital conceptions) and of their counterparts who remained childless throughout their teens.

Table 5 presents a comparison of high school completion among teenagers who fathered their first child nonmaritally at ages 11–17 and 18–19, among teenage fathers whose first child was maritally conceived, and among a comparison group of males who, prior to the 1984 survey, had not fathered a child during their teenage years. This table reveals several notable patterns. First, irrespective of their marital status or age at conception, a substantially higher proportion of teenage fathers than of the comparison group were high school dropouts. Teenage fathers with a maritally conceived child had a particularly high drop-out rate: Whereas 41 percent and 35 percent, respectively, of the 11–17-year-old and 18–19-year-old teenage fathers responsible for nonmaritally conceived births were high school dropouts, 62 percent of the married teenage fathers had not completed high school by the 1984 survey. Taken separately or together, these data stand in stark contrast to the 14 percent drop-out rate for the comparison group. Even though teenage fathers were twice as likely as the comparison group to have received their high school certification, either in the form of a GED certificate or diploma, at 20 years of age or older, their overall graduation rates were still much lower: Eighty-six percent of males who had not been teenage fathers received certification for high school, compared with only 39–65 percent of the various groups of teenage fathers. Teenage fathers, particularly the youngest ones responsible for nonmarital conceptions and all those responsible for marital conceptions, were more likely to have obtained GED certification before their 20th birthday than were males who had not been teenage fathers. While almost 14 percent of all teenage fathers earned a GED certificate, only 6.5 percent of all other males in the NLSY had received this form of educational certification (results not shown).

Additional analyses show that males who fathered a child when they were 11–16 years old were, in relative terms, the most likely to have earned a GED certificate (32.6 percent), a finding consistent with previous research on young mothers.[15] This group of young fathers was about as likely to have graduated as were either 17-year-old or 18-year-old fathers. Fatherhood was clearly outside the normative sequence of life events for the younger teenagers, but the fact that they were so young may have enabled them to complete high school, since they were probably not encouraged to assume new family responsibilities. Indeed, males who fathered children at 11–16 years of age were much less likely to have married within the 12-month period immediately following the estimated date of conception than were older teenage fathers (5.5 percent, compared with 42 percent of the 17–19-year-olds).

Since a teenage father's decision whether or not to live with his nonmaritally con-

Table 6. Among teenage fathers participating in the NLSY who were 20–27 years of age at the time of their 1984 survey and whose child was born before certification or date of leaving school, multivariate logit model for the likelihood that they had earned a diploma or GED certificate by the 1984 survey

Variable	Logit model coefficient
Race/ethnicity and poverty status	
Hispanic	0.576
Black	1.602**
Poor white	0.688
Lived in South at age 14	−0.267
Lived in urban area at age 14	−0.223
Parental education	
<12 yrs.	−0.121**
12 yrs. (reference category)	–
>12 yrs.	0.107
Lived with two parents at age 14	0.248
Fathered child at ages 11–16	0.618
Lived with child at first survey after child's birth	−0.361
Intercept	−0.229
Likelihood ratio	86.98
N	141

**p < 0.01.

ceived first child may affect his progression through school and his ultimate high school completion status, it is important to take into account the temporal ordering of the birth and educational events if a causal relationship between living arrangements and high school outcomes is to be inferred. This is especially true since many fathers will have completed high school or dropped out before their child is born. Therefore, the next analysis focuses on the 160 teenage fathers who reported a date for their first child's birth that preceded the date on which they either received their diploma or GED certificate or left high school for the last time.

Among such teenage fathers, 72 percent of those who were responsible for a nonmaritally conceived first birth and who lived with their child shortly after the child's birth had not completed high school by the 1984 survey, compared with 53 percent of those who did not live with their child; this differential was statistically significant at $p<0.05$. In addition, those who had not lived with their child were significantly more likely ($p<0.05$) to have received either a diploma (22 percent) or GED certificate (25 percent) than were their counterparts who had lived with their child (11 percent and 17 percent, respectively).

This sample was also used to examine in a multivariate context the relationship between initial living arrangements and the probability of having graduated from high school.* With the exception of religion, all of the variables used here were the same as those used as controls in the earlier multivariate models. Table 6 (see page 247) reveals that after these background factors were controlled for, living with his child shortly after birth was not significantly related to a teenage father's probability of completing high school. Being black was positively associated with a higher probability of graduating ($p<0.01$), while having a parent who had attained fewer than 12 years of education (see Appendix) was negatively related to the probability of graduating ($p<0.01$). However, having fathered a child at age 16 or younger was not related to graduation status.

One could interpret the racial difference to mean that norms or social and familial supports are more influential for young black males in minimizing the possible deleterious effects of teenage fatherhood on schooling than is the case for young white males. However, the fact that so few black males lived with their child impedes any assessment of whether having actually lived with one's child is somehow less detrimental for black teenage fathers than it is for whites. It is possible that the blacks who chose to live with their child may have been different from whites who did so in ways that the background control variables did not take into account. For example, there may have been a self-selection bias, whereby mostly industrious, highly competent black males had more of an opportunity to live with their child. As was noted earlier, many parents of young women with black teenage partners appear likely to dissuade their daughters from marrying or living with the young men, particularly if they are perceived as being poor financial risks.

Young males who both become teenage fathers and drop out of school may have been retarded in their school progress even before fathering a child. Among a subsample of young males who were 14 or 15 years of age at the time of the 1979 survey and who had not yet fathered a child, the educational expectations (as measured prior to the birth of a child) and outcomes among those who went on to father a child as teenagers were compared with the expectations and outcomes among those who did not. There were no significant differences in mean attained grade level as of the 1979 survey between those who eventually experienced a nonmaritally conceived first birth and those who did not (8.04 and 8.00, respectively). However, there was a significant difference in the number of years of schooling that respondents from these two groups said they expected to complete: Prior to fatherhood, the teenage fathers anticipated completing significantly fewer years of schooling than did their peers who were not responsible for an unplanned birth as teenagers (12.6 compared with 14.0, $p<0.01$). Consistent with this finding, the teenage fathers had completed significantly fewer years of school at the time of the 1984 survey than had the comparison group (11.1 compared with 11.7, $p<0.01$).

Discussion

Previous studies of adolescent pregnancy and childbearing have neglected to examine systematically how teenage males respond to their unplanned fertility and how their lives may be influenced by assuming the social role of father. Therefore, research focused on the propensity of teenage fathers to live with their nonmaritally conceived first child, and the effect this has on their high school education, is timely.

If they are given the opportunity, young males who are responsible for an unplanned pregnancy are faced with the decision of whether to make a formal commitment to their child and their partner by getting married, to make an informal one by living with them outside of marriage or to do neither. Unfortunately, the only information in the NLSY data set that was relevant to this issue dealt with the living arrangements of the child and the father and with the father's marital status. The indicator of commitment to fatherhood used here was therefore restricted to a measure of household structure and could not address important aspects of paternal behavior or the socioeconomic constraints affecting young men's behavior. Despite its shortcomings, however, the living-arrangement variable measures a significant gesture on a young father's part.

The bivariate analyses indicate that a number of characteristics are associated with the respondent's living with his partner or marrying to legitimate a birth, but only a few variables are useful predictors in a multivariate context. Not surprisingly, being black or Hispanic is strongly and negatively associated with getting married within a year of the child's conception and living with the child.

While none of the variables are significant predictors of living arrangements and marriage for blacks, several are significant when the model is restricted to whites. Living in a rural area, being relatively older at the child's birth, having been raised Catholic and having lived with both parents at age 14 are associated with an above-average probability that the father will live with his child, at least initially. However, only rural residence and having been raised Catholic are important predictors of marriage. Given that being black is associated with a lower probability of living with the child and getting married when compared with the experience of nondisadvantaged whites (controlling for poverty status among whites), the results described in this article suggest that different factors affect the patterns for living with a child among whites and among blacks. (It should be noted that the dummy variable for disadvantaged whites is not a significant predictor.)

Teenage fathers whose first child was maritally conceived have the poorest high school completion patterns, even worse than the patterns observed among those responsible for an unplanned birth at a relatively young age. The fact that only 31 percent of males who married and then had a child graduated from high school before their 20th birthday is alarming. This pattern supports the notion that young males who tend to be unsuccessful in an academic environment drop out of school and look to other kinds of social roles—husband and father—in search of personal fulfillment.

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*The dependent variable was a dummy variable that categorized the recipients of diplomas or GED certificates as 1 and the dropouts as 0.

It is also quite clear that a sizable proportion of males 20–27 years of age at the time of the 1984 survey who fathered a nonmaritally conceived child as teenagers, whether or not they lived with their child initially, may have been at a distinct disadvantage in the labor market because of their poor educational credentials: Only about 63 percent of these young men had earned certification for high school, compared with roughly 86 percent of their peers who had not fathered a child as teenagers. While young men responsible for nonmaritally conceived first births were about twice as likely as those in the comparison group to have earned accreditation for high school via the GED program, the youngest group of fathers responsible for nonmarital conceptions was more likely than the group of older counterparts to obtain a GED certificate prior to their 20th birthday.

An important consequence of these school completion rates is that young fathers are hampered in their ability to contribute financially to the support of their partner and child. It is interesting to note in this context that in a sample of public high school students in one city, 32 percent of black males indicated that they would prefer to pay child support and ask their partner to assume custody of the child in the event of an unplanned pregnancy;[16] ironically, only three percent of young white males, the group most likely to be in a favorable position to provide financial assistance, indicated that they would prefer to do so. About equal percentages of whites and blacks opted for an arrangement that would enable them to live with the child and presumably contribute to the financial support of their household (45 percent and 43 percent). The apparent eagerness and presumed ability of young black men to provide financial assistance seems unrealistic, however, given current employment patterns among young black males and the economic status of black families in general.[17]

The NLSY data indicate that young fathers are likely to have acquired less education than their peers who did not father a child as teenagers, but it is not clear whether living with a child who was nonmaritally conceived (or even conceived within marriage) affects young men's school progression and educational attainment. As was noted previously, research has shown that young males who legitimate an unplanned pregnancy by marrying before their child is born are less likely to be enrolled in school after the birth than are those who wait until after the child is born to marry or those who are already married when their child is conceived.[18]

Although the structure of the NLSY poses serious obstacles to conducting the sort of causal research that would clarify the association between commitment to fatherhood and educational outcomes, the multivariate model did test the hypothesis that teenage paternity accompanied by cohabitation leads to a lower probability of completing high school, at least in the short term. (Because the data used here were based only on the responses of young men 20–27 years of age in 1984, the long-term effects of teenage fatherhood on educational attainment could not be considered.) Among young males who fathered a child before they left school or before they received certification for high school, living with a child initially is not related to the probability of completing high school by earning a GED certificate or diploma. Being black is associated with a greater probability of completing school, although the finding is quite tentative; having a father who had not completed high school exerts the opposite effect. Although the NLSY data do not provide conclusive evidence of how living with a nonmaritally conceived child affects young men's educational behavior, these data do not suggest (as might have been expected) that living with a child is directly related to adverse educational consequences.

Before arriving at more definitive conclusions, though, we need to specify more fully and in a causal context the possible consequences of assuming the social responsibilities of fatherhood. In particular, research should attempt to determine the conditions under which assuming the role of father while a teenager retards or enhances* a young male's chances of completing high school and fulfilling his educational plans. This type of research would help clarify whether or not the negative consequences thought to accompany teenage fatherhood are exaggerated, since youth who are predisposed to father children at young ages may initially have fundamentally different kinds of life goals than those of their peers who do not father a child. It would be important to know, prior to conception, the young men's educational expectations, academic performance level and motivation for performing well in school, in order to assess the extent to which young males fulfill or alter their personal educational expectations. As the NLSY data have shown, among 14–15-year-olds in 1979, those who would ultimately become adolescent fathers of nonmaritally conceived children had lower educational expectations than did their peers who did not experience an unplanned pregnancy that resulted in a first birth.

Our understanding of how the consequences of early fatherhood are mediated will be enhanced if we can focus attention on the teenage father's partner and parents. Is the young man's partner supportive of his educational goals, and if so, how is this support manifested? For example, does she assume primary responsibility for financially supporting the family? What are her personal educational and career goals, and how inclined is she to lower her expectations or postpone her plans in order to facilitate her partner's education? What is the young man's role in helping or hindering his partner fulfill her educational goals? Is it explicitly or tacitly assumed that the young father's educational plans should take precedence?

Not surprisingly, a previous study has shown parental education to be an important predictor of educational attainment among NLSY teenage fathers,[19] particularly among young males who live with their child.† However, research has not specified how parental education enhances a young father's educational attainment. Is a teenage father's educational career aided because he has developed high aspirations, or are the financial resources that generally accompany higher parental educational levels responsible for providing the young male with the means to meet his financial responsibilities to his new family without disrupting his own career? This issue could be clarified if future research included measures of parental assistance and transfer payments, so that researchers could assess the extent to which resources are available to a young father and determine to what extent these resources improve his opportunities to pursue further education. Such financial assistance would probably be associated with a greater likelihood of completing more years of schooling for young fathers living with their child. Fathers who receive minimal or no outside financial assistance but who live with their child would be more likely to become permanent dropouts (or GED participants if they did graduate), and to complete fewer years of education overall.

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*A teenage birth is usually thought of as a destabilizing factor in young parents' lives, but the demanding responsibilities associated with raising a child may help young fathers who live with their child develop a more mature perspective than do their counterparts. In turn, this view of life may encourage them to take greater advantage of educational opportunities.

†The measure of cohabitation used in this earlier research was not as accurate as the measure used here, since it included all teenage fathers regardless of the year in which their child was born. The first observation point (1979) may therefore have been at least several years after the child's birth.

The National Research Council's Panel on Adolescent Pregnancy and Childbearing recently emphasized the importance of economic well-being for teenage families, particularly for those in which the parents have not yet completed high school. The panel proposed that "ensuring the economic security of teenage families until they are able to become self-sufficient is an essential strategy to achieving the larger goal of promoting positive outcomes for these young parents and their children and should involve partners, families, and the community."[20] One of the panel's objectives in this regard was to enhance the ability of young fathers to provide child support, perhaps by introducing public jobs programs that would enable young fathers to contribute financially to their child's support.

While this policy is not without merit, it is indicative of the larger dilemma facing some young fathers. More vigorous efforts to encourage or force young fathers to contribute to the financial support of their child may be at odds with the efforts of the parents of young mothers to dissuade them from living with the child's father. (The panel did not necessarily endorse such efforts.) Previous research and current societal wisdom suggest that young mothers who remain in their parent's home rather than move away on their own or with their partner may cope more successfully because they can more readily draw upon their family network for support and can thus more easily pursue their schooling.[21] Data presented in this article indicate that about half of teenage fathers responsible for nonmaritally conceived first births live with their child initially,* and other research has shown that a sizable proportion of young men would be willing to live with their steady girlfriend and child in the event of an unplanned pregnancy.[22] Apparently, then, a number of teenage fathers want to demonstrate a serious commitment to their child or their partner by living together; many might feel exploited, however, if they were expected to provide financial support to their child but were prevented or discouraged from assuming a central role in the lives of their partner and child. If young fathers are to be held more accountable for their actions through the establishment of paternity and the enforcement of child-support payments, should their role and rights in regard to pregnancy resolution, family formation and custody discussions also be strengthened accordingly? Questions concerning whether living with a child negatively affects young men's (and young women's) educational careers, and if so, under what conditions, are clearly central to this issue.

Although the research described here contributes to our understanding of adolescent fatherhood, we still know very little about young fathers. However, recent developments in the research and health service communities portend a growing commitment to developing a research agenda and creating services that focus more directly on young fathers. Not only will teenage fathers receive more attention, but young fathers in their early 20s will too, since the fathers of children born to adolescent mothers are often beyond their teens.[23] Research both on teenage fathers and on older fathers whose partners are teenagers will contribute to a better general understanding of issues related to adolescent pregnancy and parenthood. By incorporating young males more fully into the concept of adolescent fertility, we will enhance our ability to develop viable policies that may reduce the number of unplanned adolescent pregnancies and help teenage mothers and fathers to lead productive lives.

Appendix

The following dummy variables, based on the results of the bivariate analyses, were used as independent variables for the multivariate analyses:

- *Race/ethnicity/disadvantaged status.* Since there were considerable differences by racial or ethnic background or by poverty status in the initial likelihood that a young father would live with his child, separate dummy variables were created for black, Hispanic and poor white teenage fathers. The designation "Hispanic" refers to all respondents of Hispanic origin regardless of race, and "black" refers to all nonwhite, non-Hispanic respondents. Economically disadvantaged whites are distinguished from other whites in the NLSY data in order to supplement the conventional racial-ethnic breakdown of white, black and Hispanic. The Office of Management and Budget's criteria for poverty in 1978 (when the sample was selected) was used to identify this group of poor whites. Unfortunately, about 20 percent of the family income data are missing for NLSY respondents, so blacks and Hispanics could not be differentiated according to family income criteria. As a result, this variable has only four possible values—Hispanic, black, nondisadvantaged white and disadvantaged white. Nondisadvantaged whites were used as the reference group.
- *Geographical region at age 14.* A standard classification for regional residential status at age 14 (Northeast, North Central, South and West) was based on the *Federal Information Processing Standards,* Publication 5-1, June 15, 1970. Two regional variables were created—all four categories, and the South versus all others. The variable was focused on southern youth both because they were least likely to have lived with their children and because this variable has been used in previous research.
- *Urban-rural residence at age 14.* The urban-rural distinction is based on an item that asked respondents where they were living at age 14. Respondents could indicate that they lived in a town or city (urban), or either in the country but not on a farm or on a farm or ranch (rural).
- *Religious socialization and church attendance in 1979.* The childhood religious affiliation of respondents was determined using the following question: "In what religion were you raised?" For descriptive purposes, respondents were classified according to whether they were raised as Catholics, as fundamentalist Protestants, as other Protestants or as members of any other religion (including those who did not identify a religion). Consistent with a strategy enumerated elsewhere,[24] all Baptists were classified as fundamentalists, since Southern Baptists predominate within this group and others have argued that even non-Southern Baptists are more fundamentalist in their views than are members of nonfundamentalist religions.[25] The National Opinion Research Center's (NORC's) coding scheme[26] was used to differentiate between all other fundamentalists and nonfundamentalist Protestants. (Biblical literalism and aspects of religious activities were the major criteria for NORC's designation.) Religious upbringing was studied by comparing Catholics to all others because Catholic youth were most likely to have lived with their children, and fundamentalist Protestants did not appear to be different from their nonfundamentalist counterparts.

Church attendance as of the 1979 interview was assessed by means of the following question: "In the past year, about how often have you attended religious services—more than once a week, about once a week, two or three times a month, about once a month, several times or less during the year, or not at all?" This information was used to create multiple dummy variables to represent low, medium and high levels of religious commitment in 1979: One identified those who had attended religious services several times a year or not at all, and another identified those who had attended 1–3 times a month; the reference group consisted of those who had attended once a week or more.

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*This estimate is likely to be exaggerated slightly because the sample upon which it is based is comprised of a disproportionate number of older teenage fathers. Moreover, those who were less committed to paternal responsibilities were probably less likely to report births.

- *Household composition at age 14.* Two categories were distinguished—living with two parents and all other arrangements. Respondents were considered to be living with two parents at age 14 if they said that they were living with either their mother and father, father and stepmother or mother and stepfather at age 14.
- *Parental educational attainment.* Respondents were asked how many years of completed schooling their natural mother and natural father had obtained as of the 1979 survey. However, to minimize the problem of missing data, paternal education was used rather than separate paternal and maternal education variables. Paternal education utilized a series of dummy variables as well: One identified fathers (or mothers, in the absence of a father) who had not completed 12 years of schooling, and the other identified fathers who had completed at least 13 years of schooling; the reference group consisted of fathers who had completed exactly 12 years of school.
- *Others.* Family structure at age 14 was examined in the same way as in the bivariate analyses (urban-rural). Since the bivariate results indicated that 11–16-year-old fathers were much less likely to have lived with their children than were older teenage fathers, a dummy variable was used to identify the former group. Finally, since the propensity of a teenage father to live with his first child might be affected by whether he had completed high school by the time of childbirth, a variable that identified whether the birth had occurred before the date a respondent received a diploma or GED certificate or before he had left high school for the last time (if he was a dropout) was also included.

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Selective Screening for *Chlamydia trachomatis* Infection In Nonurban Family Planning Clinics In Wisconsin

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Summary

To determine the prevalence of, and identify risk factors for, *Chlamydia trachomatis* infection, we studied 380 women attending four Wisconsin family planning clinics in October 1985. The patients completed self-administered sexual history questionnaires, were examined by nurse clinicians and had specimens taken for direct fluorescent antibody (DFA) testing for *C. trachomatis*. Of 335 women with adequate specimens, 10.7 percent had positive DFA tests.

Selective screening criteria were developed based on the following risk factors for *C. trachomatis:* Age less than 20 years and recent exposure to either a new sexual partner or a partner with more than one partner; a partner with symptoms of urethritis; a diagnosis of cervicitis; and inflammatory changes on Pap smear. Thirty-six percent of patients met one or more of these screening criteria, and the criteria had a sensitivity of 72 percent.

Introduction and Methods

Chlamydia trachomatis has been recognized in recent years as the most common sexually transmitted bacterial pathogen in the United States.[1] This organism causes cervicitis, urethritis, pelvic inflammatory disease (PID) and infertility in women, epididymitis in men, and pneumonia and conjunctivitis in infants.[2] Endocervical *C. trachomatis* (chlamydial) infections are often asymptomatic or cause only mild signs or symptoms.[3] However, serious reproductive consequences can occur even in the absence of severe signs or symptoms.[4]

It has been suggested that the selective screening of women at risk for chlamydial infection, rather than the routine testing of all sexually active women, may be a cost-effective and necessary disease control strategy.[5] Risk factors for chlamydial infection have been determined for female university students[6] and for adult women and adolescents living in urban areas of the country.[7] However, little is known about the risk factors for chlamydial infection among rural midwestern women in the United States. We studied women attending four family planning clinics in northern and central Wisconsin, in an effort to determine prevalence and identify risk factors for endocervical* chlamydial infection in this population.

All women attending four Wisconsin family planning clinics in October 1985 and having a pelvic examination were asked to participate in the study. The clinics are located in Wausau (with a population of 32,000), Manitowoc (33,000), Superior (28,000) and Eau Claire (52,000). All four clinics were staffed by nurse clinicians who had expertise in women's health care. After informed consent was obtained, each patient completed a self-administered questionnaire on her clinical and sexual history. Information was obtained on the patient's age, race, marital status, years of schooling, reason for visit to the clinic, current birth control method, signs and symptoms of genital or urinary (genitourinary) illness and potential risk factors for chlamydial infection. Genitourinary-related signs and symptoms included vaginal discharge or itching, dysuria (painful urination), urinary frequency, abdominal or pelvic pain and dyspareunia (pain on sexual intercourse). The clinician reviewed each questionnaire before the examination.

During the pelvic examination, the clinician wiped the cervix with an initial swab and then, if indicated by clinic protocol, obtained a swab specimen for culture for *Neisseria gonorrhoeae*. Next, the clinician obtained an endocervical specimen (with a polyester swab), which was fixed on a glass slide for direct fluorescent antibody (DFA) testing.† The DFA test has been shown to have a sensitivity‡ of 90 percent or more and a specificity§ of 98 percent or more, when compared with tissue culture. Specimens for tissue culture of *C. trachomatis* were not obtained. A Papanicolaou (Pap) smear was obtained if indicated by clinic protocol. Clinicians evaluated the patients for signs of cervicitis and pelvic tenderness, and recorded their observations on the questionnaire. A diagnosis of cervicitis was made if swabbing induced endocervical bleeding (a friable cervix), or if mucopurulent discharge was visualized or demonstrated by a positive (yellow) swab test.[8]

All DFA specimens were sent to the

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The authors are grateful to the directors of the study site clinics and to the clinicians who participated in the study, particularly, Jo Ellen Schaefer, Family Planning Services, Inc., Wausau; Mary Ann Murphy, Eau-Claire City-County Health Department, Family Planning Program; Carol Reasbeck, Douglas County Health Care Clinic; and Margie Davis, Planned Parenthood of Wisconsin, Manitowoc. The authors thank Virginia Stauffacher for her assistance in preparing the manuscript.

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*Endocervical means occurring within or pertaining to the cervical canal.

†We used the Microtrak® test, marketed by Syva. These trade names are only for identification, and their use does not imply endorsement by the U.S. Department of Health and Human Services, the U.S. Public Health Service or the Wisconsin Division of Health.

‡The ability of a test to correctly identify the presence of a condition.

§The ability of a test to correctly exclude the presence of a condition (or identify the absence of a condition).

Wisconsin State Laboratory of Hygiene in Madison; within five days of being obtained in the clinic, the specimens were stained and read by a technician skilled in fluorescence microscopy and experienced in reading FDA tests. Each specimen was read as positive, suspicious, negative or unsatisfactory.* Patients with suspicious or unsatisfactory DFA tests were asked to return to the clinic for repeat testing. Pap smears were read at the State Laboratory of Hygiene, and cultures for *N. gonorrhoeae* were sent to local laboratories.

To determine significance in the univariate analyses, we used the chi-square test and, where appropriate, the two-tailed Fisher exact test. Variables that were significantly associated with positive DFA tests were further analyzed by stepwise multiple logistic regression, using SAS statistical software.[9]

Results

All 380 women having pelvic examinations at the four clinics during the study period agreed to participate in the study. All the women were residents of northern or central Wisconsin: 54 patients were evaluated in Superior; 114 in Manitowoc; 139 in Wausau; and 73 in Eau Claire. The participants ranged in age from 14 to 37 years (with a median age of 20 and a mean age of 21), and 37 percent were under the age of 20. Sixteen percent of the women were married, 77 percent were single, and six percent were separated or divorced. The study population consisted of 376 white, non-Hispanic women, one Hispanic woman and three native Americans. Of all study participants, 79 percent had completed high school, and 36 percent had completed at least one year of college. Seventy-three percent of the women said that they had not heard of *Chlamydia*.

We found no significant differences among the four clinics in the patients' age, race, years of schooling completed, reason for clinic visit, presence of genitourinary symptoms, contraceptive method or DFA test result. The most common reason for visiting the clinic (reported by 67 percent of patients) was to have a routine physical examination. This was followed by a need for contraceptive services (15 percent), concern about a possible gynecologic infection or sexually transmitted disease (13 percent), a problem with a contraceptive method (four percent) and pregnancy determination (one percent).

Of the 380 women who were tested, 34 had initial DFA tests positive for *C. trachomatis*, seven had suspicious results, 294 were negative, and the remaining 45 had unsatisfactory specimens. Two of the women with suspicious test results returned for repeat DFA tests; both were positive. Six of the patients with unsatisfactory specimens had the DFA test repeated; five were negative, and one specimen was again unsatisfactory. Thus, a total of 45 women (five with suspicious initial test results and 40 with unsatisfactory specimens) did not return for repeat testing and were excluded from further analysis. In all, adequate endocervical specimens were obtained from 335 women (88 percent). Of the 45 women excluded from the analysis because adequate specimens were not obtained, 47 percent had used no form of contraception during the 30 days preceding their clinic visit. In contrast, 19 percent of those with adequate specimens had used no contraceptive method (p=0.005). There were no other significant differences between these two groups.

Of the 335 women with adequate endocervical specimens, 10.7 percent tested positive for *C. trachomatis*. Of 320 cultures for *N. gonorrhoeae*, one was positive. Pap smears were obtained from 53 percent of participants; 12 percent of these showed inflammatory changes.

Correlates of Chlamydial Infections

Table 1 (see page 254) summarizes the relationship between a positive DFA test and a number of variables. Sixteen percent of women under 20 years of age, compared with 6.7 percent of those 20 and older, had tests positive for *C. trachomatis* (p=0.02). However, there was no statistically significant association between endocervical *C. trachomatis* and marital status, race or years of schooling completed. Women without prior knowledge of *Chlamydia* tended to have a higher rate of infection (12.8 percent) than those who had heard of the infection (7.0 percent), but this difference was not statistically significant.

Reason for visit was not an accurate predictor of chlamydial infection. Women visiting the clinic because of concern about a possible gynecologic infection or sexually transmitted disease were no more likely to have positive DFA tests (11.4 percent) than were women presenting for routine examination (11.7 percent). Similarly, among 202 asymptomatic women, 11.9 percent had chlamydial infection, compared with 11.3 percent of women with one or more genitourinary-related symptoms. No single symptom or cluster of symptoms was significantly associated with a positive DFA test. Of 77 women with menstrual irregularities (dysmenorrhea, intermenstrual bleeding, oligomenorrhea or hypermenorrhea), 15.6 percent had positive DFA tests, compared with 9.7 percent of women with none of those symptoms; the difference was not statistically significant.

As indicated in Table 1, several variables relating to recent sexual exposure were associated with chlamydial infection. These include having had a new sexual partner in the three months preceding the clinic visit (p=0.05), having a partner who had had more than one partner within the preceding three months (p=0.007) and having had a partner within the preceding 30 days with signs or symptoms of urethritis (p=0.0004). One study participant had a partner who had had gonorrhea within the preceding 30 days; her culture for *N. gonorrhoeae* was negative, whereas her DFA test for *C. trachomatis* was positive.

Other variables of sexual exposure were not predictive of chlamydial infection. We found no significant association between chlamydial infection and onset of sexual activity within the preceding six months, a history of a sexually transmitted disease in the preceding 12 months, or number of sexual partners. Among 205 women who had used only oral contraceptives, 12.2 percent had positive DFA tests. This proportion did not differ significantly from 9.6 percent with positive tests among women using other nonbarrier methods or no method, or from 8.2 percent among women using the diaphragm or the condom. When the analysis was controlled for age-group or number of sexual partners, there was still no significant association between contraceptive method and chlamydial infection.

On physical examination, 16.7 percent of the women were noted to have cervicitis (either mucopurulent discharge or a friable cervix). Forty percent of women with mucopurulent discharge, compared with 8.9 percent of those without it, had *C. trachomatis* infection (p=0.0004). Chlamydial infection was found in 26.5 percent of women with a friable cervix, and in 8.0 percent of those without it (p=0.0001).

A total of 178 Pap smears were obtained in October 1985. The results of the most recent Pap smears obtained before October were available for 66 additional study participants, for a total of 244. There was a statistically significant association between chlamydial infection and inflammatory

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*Positive tests had five or more elementary bodies per slide. Suspicious tests had one to four elementary bodies per slide, and tests were read as negative if no elementary bodies were present and there was adequate cellularity. Specimens were read as unsatisfactory if mucous or cellular debris prevented adequate visualization, or if endocervical cells were not present in the smear.

Table 1. Relative risk (RR) of *Chlamydia trachomatis* infection in women attending four Wisconsin family planning clinics, for variables significantly associated with *C. trachomatis* infection

Variable	No. of women with *chlamydia*	% with *chlamydia*	RR	Confidence interval*
Age-group				
<20 years (N=139)	22	15.8	2.4	1.3–4.4
≥20 years (N=195)	13	6.7	1.0	
New partner within past 3 months				
Yes (N=80)	14	17.5	2.0	1.1–3.7
No (N=250)	22	8.8	1.0	
Partner with more than one partner within past 3 months				
Yes (N=24)	7	29.2	3.2	1.5–6.9
Unknown (N=40)	7	17.5	1.9	0.9–4.3
No (N=243)	22	9.1	1.0	
Partner with symptoms of urethritis within past 30 days				
Yes (N=3)	3	100.0	14.4	5.9–34.9
Unknown (N=66)	15	22.7	3.3	1.8–6.0
No (N=259)	18	6.9	1.0	
Inflammatory changes on most recent Pap smear				
Yes (N=39)	11	28.2	5.2	2.6–10.7
No (N=205)	11	5.4	1.0	
Inflammatory changes on October Pap smear				
Yes (N=21)	9	42.9	5.6	2.7–11.5
No (N=157)	12	7.6	1.0	
Friable cervix				
Yes (N=49)	13	26.5	3.3	1.8–6.0
No (N=286)	23	8.0	1.0	
Mucopurulent discharge				
Yes (N=20)	8	40.0	4.5	2.9–8.9
No (N=315)	28	8.9	1.0	
Either friable cervix or mucopurulent discharge				
Yes (N=56)	14	25.0	3.2	1.7–5.8
No (N=279)	22	7.9	1.0	

*At the 95 percent level.

changes on Pap smears obtained during the study month as well as on the most recent Pap smear (p=0.0001). Of the 36 women with a positive DFA test, six had no identifiable risk factors other than inflammatory changes on Pap smear. Of 25 women for whom inflammatory changes on most recent Pap smear was the only identifiable risk factor, six had positive DFA tests.

Multivariate Analysis

We performed a logistic regression analysis using the following variables: age-group (age less than 20 or 20 and older); having a new sexual partner; having more than one sexual partner; having a sexual partner who had more than one sexual partner; having a sexual partner who had urethritis; inflammatory changes on the most recent Pap smear; a friable cervix; mucopurulent discharge; and cervicitis (either friable cervix or mucopurulent discharge). A total of 324 patients had complete information for all these variables. In the logistic regression model, four variables were significantly associated with a positive DFA test: cervicitis; having a partner with urethritis; inflammatory changes on Pap smear; and age less than 20 years.

Table 2 demonstrates the use of these four variables as criteria for selective screening of women for chlamydial infection. If the diagnosis of cervicitis is used as the sole screening criterion, 17 percent of women attending the four clinics would be tested, and 39 percent of those with chlamydial infection would be identified. If having a partner with urethritis is added as a risk factor, the sensitivity of the criteria increases to 42 percent. If all women who have cervicitis, a partner with urethritis or inflammatory changes on Pap smear are screened, 27 percent of all clinic patients would be tested, and 64 percent of all women with positive DFA tests would be identified. Finally, the addition of a fourth criterion, age less than 20 years, would increase the sensitivity of the criteria to 89 percent. In all, 58 percent of the women attending the clinics met one or more of these four criteria. However, if the age criterion includes only women less than 20 who have a new sexual partner or a partner with more than one partner, the sensitivity of the criteria would remain high (72 percent) but the percentage of all women to be screened is reduced to 36 percent.

Based on these study results, the criteria listed below were proposed for selective screening of women for chlamydial infection. A test for *C. trachomatis* should be performed on all patients who meet one or more of the following criteria:

- Age less than 20 years and either a new sexual partner within the preceding three months or a partner with more than one partner during the preceding three months.
- A sexual partner who had urethritis within the preceding 30 days.
- A diagnosis of cervicitis (determined by either mucopurulent discharge or a friable cervix).
- Inflammatory changes on Pap smear.

If these selective screening criteria had been applied in the four study clinics, then 72 percent of the cases of chlamydial infection would have been identified by testing only 36 percent of the patients. With the DFA as the standard, these criteria have a specificity of 69 percent, a positive predictive value* of 22 percent, and a negative predictive value† of 95 percent.

Discussion

A total of 10.7 percent of women attending four nonurban family planning clinics in Wisconsin had DFA tests positive for chlamydial infection. In this study, we did not use tissue culture techniques to detect *C. trachomatis*. The DFA test, when performed and read by experienced persons, has been demonstrated to have a sensitivity of greater than 89 percent, and a specificity of greater than 97 percent.[10] By using the DFA test we may have overestimated the prevalence of chlamydial infection in this study population. Given a DFA sensitivity of 90 percent and a specificity of 98 percent, the

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*The likelihood that a positive test result indicates the actual presence of a condition.

†The likelihood that a negative test result indicates the actual absence of a condition.

"true" prevalence of *C. trachomatis* in this population would be 9.7 percent.

Table 2. Risk factors for chlamydial infection used as screening criteria for 335 women attending four Wisconsin family planning clinics, number and percentage of women meeting criteria, number of women with positive DFA tests, and sensitivity and specificity of the criteria

Risk factor	Various combinations of risk factors											
Cervicitis	+	+	+	+	+	+	+			+		
Urethritis*		+	+	+	+	+	+	+		+		
Changes on Pap smear			+	+	+	+	+		+			
Women age <20 with exposure†				+	+					+	+	+
All women age <20					+	+					+	
All women with exposure†						+	+					
No. meeting criteria	56	57	89	120	193	219	144	3	39	89	139	42
% meeting criteria	17	17	27	36	58	65	43	1	11	27	41	13
Number positive	14	15	23	26	32	32	26	3	11	21	22	10
% sensitivity	39	42	64	72	89	89	72	8	31	58	61	28
% specificity	86	86	70	69	46	33	61	100	91	77	61	89

*Having had a male partner who had signs or symptoms of urethritis in the preceding 30 days.

†Having had a new sexual partner, or a sexual partner with more than one sexual partner in the preceding three months.

The demographic, behavioral and clinical risk factors for *Chlamydia* identified in this study are similar although not identical to the risk factors found in studies of urban women and college students. Differences between the risk factors identified in this study and those identified in earlier studies may reflect actual variation in the populations studied or may be the result of different study methods; in addition, the relatively small sample size in this study may have limited our ability to detect certain risk factors.

One of our study's major findings is that a patient's reason for visiting the clinic was not predictive of *C. trachomatis* infection. This suggests that even patients presenting for routine examination should be carefully assessed for the presence of risk factors for chlamydial infection. In addition, the presence of genitourinary-related symptoms was not useful in identifying women with chlamydial infection. This finding is consistent with the results of previous studies, although one study did identify abnormal vaginal discharge as a risk factor.[11]

Several variables relating to recent sexual exposure—including having a new sexual partner and having a partner with urethritis[12]—have previously been correlated with chlamydial infection. An additional risk factor for *C. trachomatis* infection in our study, which was not previously reported, was having a partner with more than one sexual partner in the preceding three months.

The finding that younger women are at increased risk of chlamydial infection is also consistent with the results of previous studies. Women less than 20 years old may be at increased risk for biologic as well as behavioral reasons. Cervical ectopy* is more common in younger women than in older women;[13] ectopic endocervical cells are more exposed and may, therefore, be more susceptible to infection by *C. trachomatis*.[14] The use of oral contraceptives has been associated with cervical ectopy[15] and, in several studies, with a twofold to threefold increased risk of chlamydial infection.[16] However, we did not find a statistically significant association between the use of oral contraceptives and chlamydial infection, a result consistent with findings from other studies. The absence of such an association may be due to the small sample size in our study. Other investigators have noted that cervical ectopy induced by oral contraceptives may favor improved detection of endocervical *C. trachomatis* by tissue culture.[17] Whether such potential detection bias exists for the DFA test is unknown.

In the clinic setting, it would be helpful if the decision to screen a given patient for chlamydial infection could be made on the basis of the patient's history, before the physical examination. However, accurate selective screening criteria must also include the findings of the pelvic examination, especially the presence of cervicitis. In this and previous studies, cervicitis and mucopurulent discharge, in particular, were strongly associated with *C. trachomatis* infection. Infection rates for women with mucopurulent discharge ranged from 23 percent to 59 percent in previous studies;[18] in this study, 40 percent of women with mucopurulent discharge tested positive for *Chlamydia*.

In nonurban Wisconsin, *N. gonorrhoeae* is an infrequent pathogen; therefore, its presence may be of limited use as a predictor of *C. trachomatis*. In contrast, *C. trachomatis* accounts for a relatively large proportion of sexually transmitted disease. The ratio of *C. trachomatis* to *N. gonorrhoeae* in our study population was 36:1.

Use of the Pap smear as a diagnostic test for chlamydial infection has been criticized on the basis of its low sensitivity and specificity.[19] Although other investigators have noted an association between inflammatory changes on Pap smear and chlamydial infection,[20] there has been reluctance to recommend inclusion of inflammatory changes as a criterion for selective screening, in part because of the requirement that patients return to the clinic for a repeat examination. However, as one of several selective screening criteria, inflammatory changes on Pap smear might be useful, particularly in the detection of asymptomatic infections.

The goal of any selective screening program is to maximize the identification of cases and minimize the number of tests performed. Unlike universal screening, selective screening does not identify the cases occurring among the unscreened low-risk group. On the other hand, selective screening is potentially more cost-effective than universal screening. An additional advantage of selective screening—particularly if a laboratory test like DFA, which has a specificity of less than 100 percent, is used—is an increased prevalence of the condition in the population to be screened, and, therefore, an increased positive predictive value of the test.

A recent study of women attending urban family planning clinics proposed criteria that would identify 90 percent of chlamydial infections.[21] However, use of those criteria required the testing of 65 percent of all clinic patients. In contrast, criteria proposed in this study would identify 72 percent of *C. trachomatis* infections by screening 36 percent of clinic patients. However, if our criteria were broadened to include all women less than 20 years old, 89 percent of cases would be identified, but 58 percent of all patients would have to be tested.

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*Cervical ectopy (ectropion) is the extension of the red columnar epithelial cells that line the endocervical canal outward across the vaginal portion of the cervix. Ectopy was previously referred to as erosion.

The selective screening criteria that a family planning program adopts depends on a number of factors, including financial and public health resources, laboratory support and the patient population. To be effective as a public health measure, selective screening must be part of an integrated program that also includes patient education and the appropriate evaluation and treatment of the sexual partners of persons with *C. trachomatis* infection.

In addition to the four selective screening criteria listed above, the Wisconsin Maternal and Child Health and Family Planning Program includes some criteria that either were not addressed in this study (for example, pregnancy) or were found to be risk factors in previous studies but were not identified as such in this study (the presence of pelvic inflammatory disease or gonorrhea and exposure to more than one sexual partner). When these additional criteria are included, 37 percent of women attending the study clinics are screened, and the sensitivity of the criteria increases to 78 percent. Having implemented these criteria, family planning clinics in nonurban Wisconsin are currently screening approximately one-third of their patients for *C. trachomatis* and, in cooperation with local public health agencies, are initiating follow-up and treatment of the sexual partners of women with chlamydial infection. As a result, *C. trachomatis* is currently the most commonly reported pathogen in Wisconsin.

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What Do Women Use When They Stop Using the Pill?

By William F. Pratt and Christine A. Bachrach

Summary

Current use of oral contraceptives among currently married women aged 15–44 declined from 25 percent to 13 percent between 1973 and 1982, while ever-use increased from 60 percent to 80 percent. By 1982, the pill appeared to be used mainly to delay first pregnancies, secondarily to space subsequent conceptions, and only rarely as a means of ending childbearing.

Most women who had stopped using the pill by 1982 had done so on their own initiative: Only about one-third had been advised by a doctor to discontinue use. Virtually all former users gave some physical problem connected with pill use as a reason for quitting the method. At the time they quit, former users had been taking the pill for an average of 3.2 years.

The decline in current use of the pill during the 1970s coincided with a marked increase in contraceptive sterilization, but was not the result of a direct switching from the pill to sterilization by individual women. Only 21 percent of women who quit the pill chose sterilization as their next method. The majority—60 percent—switched to nonpermanent methods, the condom being the most popular in all age-groups; the proportions selecting the condom as their next method ranged from 20 percent of 15–19-year-olds to 12 percent of 30–44-year-olds. Nineteen percent of former pill users did not adopt any method after discontinuing the pill.

Just over half of the women who quit using the pill adopted a new method without any break in contraceptive practice. Nearly 20 percent of former pill users had some break in use but apparently were not exposed to the risk of unintended pregnancy at the time they stopped taking the pill. The remaining women—27 percent of former pill users—apparently were exposed to risk but went unprotected for some time after they quit using the pill.

By 1982, the proportion of former pill users who were relying on sterilization had risen to 30 percent, while the proportion using nonsurgical methods had fallen to 29 percent. Forty percent of former pill users were using no method at the survey date, but the large majority of them were not exposed to the risk of unintended pregnancy.

Continuity of method use and the effectiveness of the next method chosen had important effects on the risk of unintended pregnancy following pill discontinuation. Among white married women who discontinued pill use in 1979 or later, the proportion who subsequently had an unintended pregnancy ranged from six percent of those whose next method was the IUD or sterilization to 23 percent of those who switched to methods such as periodic abstinence or withdrawal. Ten percent of women who adopted their next method in the same month or next month after quitting the pill had an unintended pregnancy, compared with 26 percent of those who had a break in method use and were exposed to risk. The proportions who obtained abortions after discontinuing the pill followed a similar pattern.

In the 1970s, the decline in pill use and increase in sterilization did not represent a direct switch from one method to the other. Most women who stopped using the pill first turned to other nonpermanent methods.

Introduction

The decade of the 1960s witnessed a transformation of contraceptive behavior that was spurred by the introduction of two new methods—the pill and the IUD—and by increased interest in contraceptive sterilization, both male and female.[1] The pill has received the lion's share of credit for this "contraceptive revolution." When the method was first introduced, in 1960, it was greeted enthusiastically by women and doctors seeking an effective, reversible fertility control measure that could be administered independently of coitus.[2] Over the next five years, the proportion of married couples using the pill increased rapidly.[3] By 1970, more of them were using it than were using any other type of contraceptive.[4]

As information about a number of health risks associated with the pill began to emerge and be publicized starting in the late 1960s, however, the enthusiasm gave way to skepticism and retreat. The preeminence of the pill was indisputably shaken as the proportion of married couples using oral contraceptives declined by nearly one-half between 1973 and 1982. There is some evidence that the pill may have regained popularity in the early 1980s: The number of prescriptions filled increased from an estimated 44 million in 1979 to 60 million in 1982.[5] By 1985, however, the number had declined again, to 50 million.[6]

The decline in pill use during the 1970s was partially offset by an increase in the prevalence of contraceptive sterilization. By 1982, female sterilization had become the leading method of contraception among married women aged 15–44. However, the change was not the result of a

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Table 1. Number of currently married women aged 15–44, and percentage ever using and currently using oral contraceptives, by selected characteristics, United States, 1965, 1973 and 1982

Characteristic	No. (in 000s)			% ever using			% currently using		
	1965*	1973	1982	1965	1973	1982	1965	1973	1982
Total	**25,361**	**26,646**	**28,231**	**26.1**	**60.1**	**80.1**	**15.6**	**25.1**	**13.4**
Age-group									
15–19	984	1,028	612	42.4	65.2	67.9	28.3	43.9	37.1
20–24	4,229	4,949	4,130	46.5	80.6	81.6	30.1	45.1	35.1
25–29	4,776	6,063	6,442	37.2	75.6	86.6	22.5	30.5	21.1
30–34	4,849	5,248	6,482	24.5	64.3	87.2	13.2	20.2	8.4
35–39	5,209	4,632	5,783	15.0	43.9	78.1	7.9	14.1	2.7
40–44	5,314	4,726	4,783	8.8	28.7	64.6	4.9	9.5	1.0
Parity									
0	3,525	4,830	5,098	26.8	66.0	77.2	14.8	35.1	25.7
1	4,337	5,086	5,891	29.7	64.1	83.1	15.9	31.2	18.8
2	6,492	7,107	9,042	27.3	63.0	82.3	18.1	26.2	10.1
≥3	11,007	9,623	8,201	24.1	52.9	77.4	14.3	16.1	5.6
Race									
White	22,832	24,249	25,195	26.8	60.7	80.7	15.9	25.1	13.4
Black	2,529	2,081	2,130	18.8	55.9	79.6	12.4	26.3	15.6
Childbearing intentions									
Intend more	u	7,813	8,313	37.7	69.9	81.9	22.3	36.9	27.8
Intend no more	u	17,063	18,311	21.8	55.3	79.4	13.3	19.3	6.5
Don't know	u	1,770	1,608	u	63.3	79.8	u	29.2	18.3
Education (in yrs.)									
<12	u	7,102	4,844	21.5	50.2	74.8	12.7	20.2	12.1
12	u	12,904	12,191	26.4	61.0	79.3	16.0	26.2	16.2
≥13	u	6,641	11,196	33.9	68.8	83.4	20.1	28.4	10.9

*Estimated from Mar. 1965 Current Population Survey. Note: u = unavailable.

Sources: Data for 1965: National Fertility Study, and "Marital Status and Family Status: March 1965," *Current Population Reports*, Series P–20, No. 144, 1965. Data for 1973 and 1982: NSFG, Cycles I and III.

simple switch from the pill to sterilization across all socioeconomic and demographic subgroups. Although the pill remained the leading nonsurgical method of contraception, it lost ground in this category also, as both the diaphragm and the condom regained some of their lost popularity.[7]

The decline in pill use is of concern to many health care providers because research now indicates that the well-publicized health risks of pill use are, for many groups of women, counterbalanced by certain health benefits, such as protection against pelvic inflammatory disease and some types of cancer.[8] Equally important, the decline in pill use implies an increased risk of unintended pregnancy for women who do not turn immediately to sterilization.[9] During 1973–1982, the years in which pill use was declining sharply, the proportion of births that were mistimed (that is, wanted eventually but conceived sooner than desired) increased from 55 percent to 75 percent among ever-married women aged 15–19.[10] A smaller and nonsignificant increase, from 40 percent to 44 percent, also occurred among those in the 20–24 age-group. Although these trends in mistimed births cannot be directly linked to declining pill use, they are consistent with the concern that the avoidance of pill use among young women may result in increased rates of unintended pregnancy.

Hence, our question: What do women do for contraception after they stop using the pill? What proportion of former pill users do switch directly to sterilization? What proportion become risk-takers, using no method at all, and how many resort to less-effective methods? How many who abandon the pill experience unintended pregnancies, and how many have abortions? Before considering these questions, however, we examine more closely the trends and differentials in current use and ever-use of the pill since 1965, the duration of pill use for current and former users and the reasons former users give for quitting.

Data from Cycle III of the National Survey of Family Growth (NSFG), conducted by the National Center for Health Statistics in 1982, provide the basis for most of this analysis. The discussion of the trend in pill use also draws upon data from the National Fertility Study of 1965 and from Cycle I of the NSFG, conducted in 1973. For Cycle III, interviews were completed with an area probability sample of 7,969 women 15–44 years of age in the noninstitutionalized population of the conterminous United States; the survey included a broad range of questions concerning the respondent's reproductive experience and socioeconomic characteristics. A technical discussion of the survey and sample specifications has been published elsewhere.[11]

The statistics presented in this article are weighted estimates of population totals and percentage distributions.* Unless otherwise stated, all differences discussed in the article are statistically significant at the 0.05 level using a two-tailed t-test with 39 degrees of freedom.

The analysis focuses on women who were former pill users in 1982. Undoubtedly, some of the women who had stopped using the pill by that time would eventually start again in response to changing contraceptive needs and changing perceptions of the pill itself. This article seeks to document the contraceptive behavior associated with the decline in pill use during the 1970s; it does not pretend to forecast the future behavior of women.

Trends and Differentials in Pill Use

• *Currently married women.* The adoption of oral contraceptives has been far more widespread than the statistics on current use indicate. By 1965, five years after the introduction of the pill, 26 percent of currently married women had ever used the method, but only 16 percent were currently relying on it (see Table 1 and Figure 1). By 1973, 60 percent had ever used the pill, whereas only 25 percent were currently using it. Subsequently, the proportion of current users dropped steadily while the proportion of ever-users soared: By 1982, only 13 percent of married women were current users—a lower proportion than in 1965—but 80 percent were ever-users.

The trends in ever-use among married women reflect several ongoing processes: beginning in the early 1960s, growing acceptance of the pill by both women and medical practitioners; the cumulation of experience with the pill over time by given cohorts of women, and the movement of these cohorts through the reproductive ages; and trends in marital status over time.

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*Standard errors of estimates were calculated using the balanced half-sample replication technique (see reference 11).

The first of these processes is most evident when patterns of pill adoption among the youngest age-groups are compared for 1965 and 1973. By 1965, over two-fifths of currently married women aged 15–24 had ever adopted the pill, but by 1973 almost two-thirds of those aged 15–19 and four-fifths of women aged 20–24 had ever used it. The proportions were quite similar in 1982, suggesting that the rate at which young women were adopting the pill may have stabilized.

Ever-use of the pill has also increased because the cohorts of women who were young during or after the 1960s have cumulated experience with the pill, and these cohorts have come to dominate the population of reproductive age. Women aged 40–44 in 1982 were substantially the same group as those aged 30–34 in 1973 and those aged 25–29 in 1965. Between 1965 and 1973, this "cohort" of women experienced a large increase in the proportion ever using the pill but showed no change after that time. In contrast, women aged 40–44 in 1965, and to a lesser extent those aged 40–44 in 1973, were relatively unlikely to have used the pill because they were well into their childbearing careers by the time the pill was introduced. By 1982, these women had aged out of the population of reproductive age.

As noted previously, the proportion of current users rose between 1965 and 1973, and then fell sharply between 1973 and 1982. The drop was sharpest in the older age-groups but was substantial in the younger age-groups as well. Because the data refer only to currently married women, trends in pill use among the younger age-groups could reflect changing marital patterns (that is, changes in who marries) rather than changing pill use by young women in general. Comparable data on current use among never-married women are not available, but a possible trend away from the pill among this group is suggested by the decline that occurred in the proportion of women using the pill at first premarital intercourse—from 15 percent for those beginning coitus in 1970–1974 to 11 percent in 1980–1982.[12]

In 1965, the number of children a woman had borne had little impact on her propensity to use the pill. By 1982, however, parity had a clear effect: The level of current pill use fell sharply as parity increased. Although the proportion currently using the pill declined in every parity group between 1973 and 1982, the decline was proportionately steeper with increasing numbers of children. In all three surveys, women intending to have more children were far more likely to be using the pill than were women who intended no more. Further, the proportionate decline in current use between 1973 and 1982 was much greater among women intending to have no more children. It seems likely that the sharper declines in current use among those at higher parities and those seeking to end their childbearing reflect the increasing attractiveness and availability of sterilization as a contraceptive alternative. Not only may pill users in those two groups have switched to sterilization, but women who previously might have switched from other methods to the pill in order to terminate childbearing may have switched instead to sterilization.

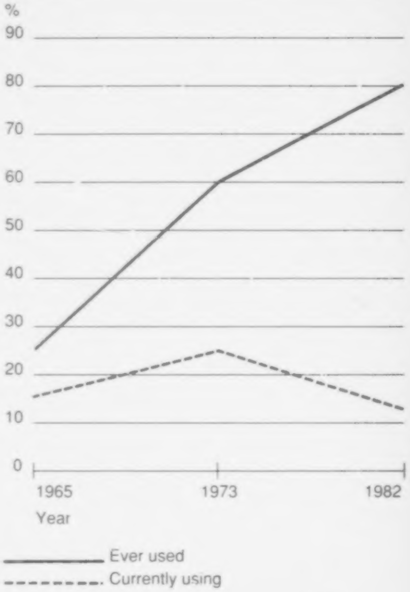
Ever-use of oral contraceptives among currently married women has consistently risen with educational level. In both 1965 and 1973, this was also true of current use. However, by 1982, women with the highest level of education were the least likely to be current users. It would appear that better educated women took the lead first in adopting oral contraceptives and then in giving them up.

- *Sexually active women.* Information on the use of oral contraceptives among all sexually active women, regardless of marital status, became available for the first time with the 1982 NSFG; the 1965 National Fertility Study had included only currently married women, and the 1973 NSFG had been limited to ever-married women and never-married women with children.

Table 2 (page 260) presents the data on pill use among all sexually active women as of 1982. Compared with currently married women (see Table 1), women who have ever been sexually active were only slightly less likely to have ever used the pill (76 percent as against 80 percent). The difference in ever-use is almost entirely due to the inclusion of never-married women, who are heavily represented among those younger than 25, those with no children and those with less than a high school education. These women have spent fewer years exposed to the risk of unintended pregnancy and have had less opportunity to adopt a contraceptive method, specifically the pill.

The striking contrast between all women and currently married women is in the proportion of ever-users who are current users: In 1982, that proportion was 24 percent among all women , but it was 17 percent among currently married women. Again, the reason lies primarily with never-married women. The proportion of ever-users who were relying on the pill in 1982 was almost three times as high among never-married women as among currently married women (49 percent vs. 17 percent). Younger women, the childless and those intending to have children in the future—categories in which never-married women were heavily represented—also had substantially higher proportions of ever-users who were currently using the pill. These women were likely to have begun pill use more recently than older and higher parity women and hence were likely to have been exposed for a shorter time to the risk of stopping.

Figure 1. Percentage of currently married women ever using and currently using oral contraceptives, United States, 1965, 1973 and 1982



Sources: Data from the 1965 National Fertility Study and Cycles I (1973) and III (1982) of the NSFG.

Together, the data in Tables 1 and 2 suggest that by 1982 at least, oral contraceptives were being used primarily to avoid premarital pregnancies or to delay marital first pregnancies. Pill use had declined sharply as a means of timing subsequent births, and had fallen to very low levels as a means of terminating childbearing.

Duration of Pill Use

The fact that the proportions of married women currently using the pill have declined while the proportions ever using it have increased or remained steady suggests that after adopting the method, women may be abandoning it sooner than they used to. However, the trend in 12-month pill discontinuation rates among married women lends only moderate support to this hypothesis. The probability of discontinuing pill use within 12 months rose during both 1965–1970 and 1970–1975,[13] but went only slightly higher in 1979–1982.[14] Information on changes in the probability of using the pill for periods longer than 12 months is not available.

Nevertheless, discontinuation rates reflect only the duration of periods of continuous pill use. Levels of current use may decline while continuation rates remain constant if fewer women resume pill use after a break (this could happen, for example, if fewer women used the pill to space births after their first one). For purposes of examining these relationships, information is needed on the cumulative duration of use. Cycle III of the NSFG was the first national survey to collect such data (the question asked was, "How long altogether have you used birth control pills?"), so trends cannot be examined. However, the survey does provide a baseline as of 1982 for monitoring changes in the cumulative duration of pill use.

As Table 3 shows, the mean duration of use among sexually active women who had ever taken the pill was just under three and one-half years. Fewer than one-third of ever-users had relied on the pill for five or more years altogether. Because duration of use was longer for current users than for former users, duration is shown separately for these two groups.

Duration of use by both current and former users increased with age, most likely because the younger women had had less time to accumulate experience with the pill. Nearly two-thirds of current users 25–44 years of age had been taking the pill for five or more years, compared with only one in eight current users aged 15–24. White women and black women reported similar durations of pill use, although among current users, blacks tended to have used the pill longer (4.4 years vs. 4.0 years, $p<0.10$). The apparent tendency for duration of pill use to increase with educational attainment is partly an artifact of the very young ages of women who had had fewer than 12 years of schooling. When comparisons are limited to women aged 20–44, education is unrelated to length of use among current users (not shown). Among former users aged 20–44, however, women who had completed fewer than 12 years of education continued to have a shorter average duration of use than did those who had completed 12 or more years (2.7 vs. 3.5 years). The less-educated group may have contained a disproportionate number of women who began childbearing early and who, following the patterns by parity and childbearing intentions observed in Tables 1 and 2, switched at an early age to other methods of contraception to space subsequent births or terminate childbearing.

Table 2. Number of women aged 15–44 who have ever had sexual intercourse; percentage who have ever used the pill; and percentage distribution of ever-users, by whether they are current or former users; according to selected characteristics, 1982

Characteristic	No. (in 000s)	% ever using	Ever-users		
			Current users	Former users	Total
Total	**46,684**	**76.3**	**23.7**	**76.3**	**100.0**
Age-group					
15–19	4,467	54.0	60.7	39.3	100.0
20–24	9,080	73.4	49.2	50.8	100.0
25–29	9,929	85.4	27.6	72.4	100.0
30–34	9,189	85.6	13.1	86.9	100.0
35–39	7,725	79.6	4.5	95.5	100.0
40–44	6,293	64.6	1.1	98.9	100.0
Marital status					
Never-married	11,749	62.8	48.5	51.5	100.0
Currently married	28,231	80.1	16.7	83.3	100.0
Widowed, separated, divorced	6,704	84.0	19.0	81.0	100.0
Parity					
0	15,526	66.8	42.8	57.2	100.0
1	8,979	82.4	28.3	71.7	100.0
2	11,645	83.2	13.4	86.6	100.0
≥3	10,534	77.6	7.3	92.7	100.0
Race					
White	39,031	76.7	22.9	77.1	100.0
Black	6,263	76.3	29.0	71.0	100.0
Childbearing intentions					
Intend more	18,593	72.6	42.6	57.4	100.0
Intend no more	25,497	78.8	10.8	89.2	100.0
Don't know	2,594	78.3	25.7	74.3	100.0
Education (in yrs.)					
<12	9,668	67.7	23.4	76.6	100.0
12	18,557	78.3	25.9	74.1	100.0
≥13	18,459	78.9	21.6	78.4	100.0

Reasons for Quitting

All former pill users were asked the reasons why they had stopped using the pill, whether they had ever been advised to quit by a physician, and if so, what the physician's reasons for this advice had been. The answers are shown in Table 4 (page 262) according to whether the woman had discontinued use on her doctor's advice or on her own initiative. Percentages do not add to 100 because many women gave more than one reason.

As shown in the table, the reasons cited suggest that explicit medical advice played a less critical role in pill discontinuation than did women's independent judgment. Just over one-third of former users had been told by a doctor to stop using the pill. However, we do not know to what extent these women may have sought a doctor's opinion to confirm their own choice; there may have been more interplay between a user's own perceptions or concerns and professional medical advice than is reflected in our data.

Physical problems constituted the largest category of reasons for stopping the pill; virtually 100 percent of former pill users cited such problems, although they were less frequently mentioned as the physician's reasons than as the woman's own. Problems ranged in seriousness from tiredness (not shown) to blood clots and heart disease. Twenty percent of women who quit the pill on their own, and 10 percent of those who quit on their doctor's recommendation, also said that concerns about potential health problems had been a reason for discontinuing. To some extent, these findings may reflect a general public perception of the pill as being linked with health problems—a perception that was apparently more widespread in the early 1980s than it was a decade or so earlier:

Table 3. Total number of sexually active women aged 15–44 who have ever used the pill (separated into current and former users); percentage distribution, by duration of pill use; and mean duration of pill use; according to selected characteristics, 1982

Characteristic	No. (in 000s)	Duration of use (in yrs.)						Mean duration (in yrs.)
		<1	1–2	3–4	5–6	≥7	Total	
Total	**35,633**	**25.7**	**26.6**	**17.2**	**13.2**	**17.3**	**100.0**	**3.4**
Current	8,440	18.9	27.5	18.0	13.6	22.0	100.0	4.0
Former	27,193	27.8	26.3	17.0	13.1	15.8	100.0	3.2
AGE-GROUP								
15–24								
Current	4,743	28.4	38.2	20.6	8.5	4.3	100.0	2.4
Former	4,333	45.1	33.8	14.4	5.4	1.3	100.0	1.6
25–34								
Current	3,371	6.8	13.4	15.0	20.2	44.5	100.0	6.0
Former	12,969	24.6	26.8	17.7	15.9	15.1	100.0	3.3
35–44								
Current	325	4.6	16.5	7.9	19.5	51.5	100.0	7.6
Former	9,891	24.4	22.3	17.2	12.9	23.2	100.0	3.9
RACE								
White								
Current	6,872	20.2	27.0	17.1	13.9	21.8	100.0	4.0
Former	23,077	27.5	26.1	17.2	13.5	15.6	100.0	3.3
Black								
Current	1,383	13.0	27.1	21.0	13.4	25.5	100.0	4.4
Former	3,392	29.7	26.2	17.4	11.7	15.0	100.0	3.1
EDUCATION (IN YRS.)								
<12								
Current	1,535	29.5	33.4	12.4	[illegible]	18.6	100.0	3.2
Former	5,014	41.0	23.0	16.1	8.1	11.8	100.0	2.5
12								
Current	3,761	16.9	26.8	19.9	14.9	21.5	100.0	4.1
Former	10,761	26.8	26.3	16.6	13.8	16.5	100.0	3.3
≥13								
Current	3,143	16.4	25.6	18.2	15.6	24.2	100.0	4.3
Former	11,418	23.0	27.7	17.8	14.7	16.8	100.0	3.5

Among ever-married women younger than 45 who were surveyed in the 1970 National Fertility Study, 71 percent cited physical problems as a reason for stopping pill use, and 17 percent cited worry over potential health problems.[15]

Eleven percent of women who said they had discontinued pill use on their own initiative, compared with 22 percent of women who had been advised by a doctor to do so, mentioned user characteristics incompatible with pill use, such as older age or cigarette smoking, as a reason for stopping. In contrast, women who had quit on their own were two times as likely as those who had quit on a doctor's advice to cite adoption of a new contraceptive method (10 percent compared with five percent) or nonexposure to the risk of unintended pregnancy (32 percent compared with 15 percent) as a reason for discontinuing the pill.

Method Use After the Pill

We next examine three facets of women's contraceptive behavior after they stop taking the pill: the next method they use, their current method and whether they experience a break in method use before beginning another method. The NSFG data on next and current method help to document whether women who switched from the pill to other methods placed themselves at higher risk of unintended pregnancy (by switching to less-effective methods) or at lower risk (by switching to sterilization), and how their risk status had changed by the survey date. Women who experienced a break in method use for reasons other than nonexposure increased their risk of unintended pregnancy, regardless of the efficacy of the method they eventually adopted.

Sixty percent of former pill users turned next to other nonsurgical methods of contraception, as Table 5 shows (page 262). Over half chose the IUD (13 percent), the condom (17 percent), the diaphragm (10 percent) or another barrier method (12 percent), and eight percent chose periodic abstinence, withdrawal or douche. Only 21 percent of former pill users adopted contraceptive sterilization as their next method. Nineteen percent of former users, on the other hand, reported no next method of contraception.* Next-method choices were similar for women who began to use their new method immediately, for those who had a break in contraceptive use because they were not exposed to the risk of unintended pregnancy, and for women who had a break in use while remaining exposed to risk (not shown).

Since age and parity have repeatedly been shown to affect current contraceptive use,[16] it is not surprising that these two characteristics at the time of last pill use are strongly associated with the woman's choice of a next method. The proportion electing sterilization increased dramatically with both age and parity, from seven percent of women aged 15–19 to 39 percent of those aged 30–44, and from six percent of childless women to 47 percent of those with three or more children. Nonsurgical methods were more often the choice of younger women and of women with no or few children. The condom was the most popular of the nonsurgical methods in all age-groups; the rate of condom use was highest among women aged 15–19 (20 percent) and childless women (21 percent), and then declined as age and parity increased. The diaphragm had its greatest popularity as a next method among childless women, 17 percent of whom adopted it after quitting the pill. The IUD was chosen by 18 percent of women with one child and by 11 percent of women of other parities.

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*These findings on contraceptive behavior following pill discontinuation can be compared with the results of another recent study, also based on the 1982 NSFG. As part of a larger examination of contraceptive switching, the authors of that study estimated standardized rates of switching from the pill to other methods and from the pill to no method, for intervals of pill use during 1979–1982. Their results showed rates of transition to no method similar to those reported here, but indicated lower rates of switching to sterilization and the IUD and higher rates of switching to the condom. The differences between their results and our own are most likely attributable to differences in methodology (their study used hazards-models life tables to estimate standardized rates) and in the populations studied (their study was limited to pill-use segments among currently married women that occurred during 1979–1982 and that ended within two years; the study presented here is based on the most recent pill-use segments of all former users). (See: W. R. Grady et al., "Contraceptive Switching Among Currently Married Women in the United States," paper presented at the annual meeting of the Population Association of America, Chicago, May 1987.)

Table 4. Number of former pill users aged 15–44 and percentage reporting selected reasons for quitting the pill, by whether they had been advised by a doctor to quit, 1982

Reason	Quit on MD's advice		Quit on own initiative
	MD's reason	All reasons*	
No. (in 000s)	9,289	9,289	16,581
Physical problem†	**72.1**	**99.7**	**98.2**
Headaches	12.0	15.3	6.4
Menstrual abnormality	11.8	15.3	6.0
Weight gain	3.4	5.9	11.4
Nausea	3.5	9.9	10.2
Blood clot, heart disease	10.4	11.2	3.2
High blood pressure	11.8	12.4	1.2
Potential health effect‡	5.6	9.5	19.8
User characteristic§	21.0	21.9	10.7
New method	0.5	5.4	9.8
Nonexposure**	2.1	14.5	32.0
Other	8.5	14.6	23.3

*Women who had been advised by a doctor to quit were asked what their own reasons were for discontinuing as well as why the doctor said they should stop.

†Percentages for individual problems do not add to category total because only the most frequently reported problems are listed.

‡Concern about a health effect the pill might have, apart from existing conditions.

§Existing characteristic of or behavior by the woman making it unsafe for her to continue pill use, e.g., smoking or older age.

**Nonexposure to risk of unintended pregnancy because woman was pregnant, seeking pregnancy, noncontraceptively sterile or not having intercourse.

Women younger than 20 at their last pill use were twice as likely as women aged 30–44 to report that they had not used another method since quitting the pill (32 percent compared with 16 percent). Half of the women who had stopped using the pill while in their teens were still under 20 at the time of the survey; of these, two out of three had quit within the year before the survey (not shown). Hence, the higher proportion of adolescent pill discontinuers using no method may reflect temporary periods of nonexposure as well as the generally greater contraceptive risk-taking that has been observed among teenagers.[17] Parity was also associated with the proportion reporting no next method after the pill, but the differences were smaller.

The choice of a next method was quite different for black women and white women. Blacks were almost twice as likely as whites to use no next method (32 percent compared with 17 percent). The two subgroups were equally likely to choose contraceptive sterilization (about 20 percent), but black women were more likely to choose the IUD (17 percent vs. 12 percent), and whites more often opted for the diaphragm and the condom (11 percent and 18 percent vs. 5 percent and 10 percent, respectively).

Preference for the next method also varied with educational attainment. The choice of no next method declined sharply with increasing education, even when comparisons were limited to women aged 20–44 (not shown). Adoption of surgical sterilization was sharply lower among women with some college education (16 percent) than it was among other women: Twenty-five percent of women who had had no more than a high school education switched to this method. Nearly three-fourths of those with some college education opted for nonsurgical methods. The diaphragm had its greatest acceptability among those with some college: Eighteen percent used it after the pill, whereas only five percent of other women did so.

Information about the choice of the next method, however, provides an incomplete picture of contraceptive behavior after pill use ends. Many former users may have periods of no method use either before or after they adopt their next method, and many (excluding those who choose sterilization as the next method) may subsequently switch again. Indeed, some women may return to the pill before ending their contraceptive careers, although (by definition) none of the former users described here had done so by the time of the survey.

Data on the current contraceptive practice of former pill users provide a substantially different view than do the data on next method (compare Tables 5 and 6). Whereas 21 percent of former pill users had adopted contraceptive sterilization as their next method, 30 percent had chosen it by the time of the survey. Use of nonsurgical methods, on the other hand, was sharply lower at the survey date than it was following last pill use—only 29 percent of the women were relying on them, compared with 60 percent at the previous time. Forty percent of former pill users were not using a contraceptive method at the survey date; these women include the 19 percent of former users who had not used a method since quitting the pill.

The variations in current use of nonsurgical methods by demographic and socioeconomic characteristics generally parallel the variations observed in the choice of next method, but the differences are considerably smaller (see Table 6). The proportions currently relying on sterilization rose sharply with increasing age and parity at last pill use; however, the gain in sterilization prevalence between adoption of the next method and adoption of the current method was largest among women in their 20s at last pill use (11–12 percentage points) and among women with one or two children (14 and 10 percentage points, respec-

Table 5. Number of former pill users aged 15–44; and percentage distribution, by next method of contraception used; according to selected characteristics, 1982

Characteristic	No. (in 000s)	Next method used							
		None	Sterilization	IUD	Diaphragm	Condom	Other barrier*	Other†	Total
Total	**26,046‡**	**19.4**	**20.9**	**12.7**	**10.2**	**16.9**	**11.7**	**8.2**	**100.0**
Age at last use									
<20	3,218	32.3	6.8	11.5	11.5	19.9	9.8	8.2	100.0
20–24	9,286	20.3	13.7	14.8	11.7	17.4	12.6	9.5	100.0
25–29	8,211	15.4	23.5	13.2	10.1	18.4	12.1	7.4	100.0
30–44	4,982	15.9	39.3	8.4	6.5	12.1	10.7	7.1	100.0
Parity at last use									
0	11,235	22.5	5.5	11.1	17.3	21.0	13.4	9.2	100.0
1	6,545	18.8	21.5	17.6	6.3	15.3	13.0	7.5	100.0
2	5,081	15.4	38.4	10.9	3.7	13.4	10.5	7.7	100.0
≥3	3,185	15.9	46.5	10.9	3.6	11.1	5.2	6.7	100.0
Race									
White	22,151	17.3	20.9	12.3	11.1	17.7	12.1	8.7	100.0
Black	3,187	31.6	20.2	16.6	5.0	10.0	10.5	6.0	100.0
Education (in yrs.)									
<12	4,734	30.9	24.1	14.4	2.4	16.5	7.0	4.6	100.0
12	10,182	21.6	25.4	10.6	5.9	14.6	12.8	9.1	100.0
≥13	11,130	12.5	15.5	13.8	17.5	19.1	12.7	8.8	100.0

*In this and following tables, category includes foam, suppositories, jelly and cream.

†In this and following tables, category includes periodic abstinence, douche, withdrawal and other methods.

‡Subgroups may not add to total because of unreported information.

tively). These were probably the groups most likely to include women who had not completed their childbearing when they quit pill use but who had done so by the time of the survey.

The great majority of former pill users currently using no method were not exposed to the risk of unintended pregnancy; that is, they were noncontraceptively sterile, or were pregnant, postpartum or seeking pregnancy, or had not had intercourse in the three months before the survey. Overall, 33 percent of former users were not currently exposed to risk, the proportion decreasing as age, parity and education increased. An additional eight percent were not using a method despite being exposed to risk, and that proportion, too, declined with increasing age, parity and education. The proportion not using a method but exposed to risk was substantially higher for black women (17 percent) than for white women (seven percent).

In Table 7, the current contraceptive status of former users is cross-classified by the next method they used after the pill. The table shows that between one-quarter and one-third of women who had elected a nonsurgical method of contraception after quitting the pill were not using a method at the time of the survey, mainly because they were pregnant, postpartum or seeking pregnancy or because they were noncontraceptively sterile. Close to one-fifth of women who reported sterilization as their next method were not using a contraceptive at the interview date: Fifteen percent said they were noncontraceptively sterile, that is, they had had a noncontraceptive motivation for the sterilization operation (this issue is discussed in a separate paper by one of the authors[18]). The remaining three percent had relied on male rather than female sterilization or had had their operation reversed.

As Table 7 indicates, among the women who had used no method since quitting the pill (19 percent of all former pill users), 75 percent were in the nonexposed category, leaving 25 percent who were currently risking pregnancy by not using a method. The proportions currently taking risks were 3–6 percent among women who had adopted nonsurgical methods after leaving the pill, and only one percent among those who had adopted sterilization.

Approximately three-quarters of the women who had adopted a next method were relying on some means of contraception at the interview date. About one-half or more of these women were still using their "next" method. The exception was women whose next method was "other barrier";

Table 6. Number of former pill users aged 15–44; and percentage distribution, by current method of contraception used; according to selected characteristics, 1982

Characteristic	No. (in 000s)	Current method used								
		None		Sterilization	IUD	Diaphragm	Condom	Other barrier	Other	Total
		Exposed to risk*	Not exposed							
Total	**26,046†**	**7.8**	**32.5**	**30.4**	**6.4**	**6.2**	**8.5**	**3.8**	**4.4**	**100.0**
Age at last use										
<20	3,218	14.6	40.7	11.6	7.6	9.1	8.2	2.7	5.6	100.0
20–24	9,286	7.8	33.9	24.3	7.3	7.7	9.2	3.5	6.2	100.0
25–29	8,211	6.3	31.7	35.5	7.0	4.7	9.0	3.1	2.7	100.0
30–44	4,982	5.5	26.1	45.7	2.6	4.1	7.4	5.3	3.2	100.0
Parity at last use										
0	11,235	9.4	36.3	13.7	6.9	12.3	10.9	4.7	6.0	100.0
1	6,545	8.0	32.8	35.3	7.4	2.0	7.5	3.3	3.6	100.0
2	5,081	6.1	27.7	48.0	4.9	1.3	5.1	3.9	3.0	100.0
≥3	3,185	4.4	26.2	51.4	5.2	1.1	7.9	1.5	2.4	100.0
Race										
White	22,151	6.5	32.2	30.9	6.3	6.7	9.2	3.7	4.5	100.0
Black	3,187	16.5	32.9	27.2	8.1	2.6	4.1	4.9	3.9	100.0
Education (in yrs.)										
<12	4,734	11.9	38.1	28.2	7.8	1.7	6.9	3.5	1.9	100.0
12	10,182	7.8	33.6	34.3	5.2	2.7	7.2	3.9	5.3	100.0
≥13	11,130	6.0	29.1	27.8	7.0	11.3	10.5	3.8	4.5	100.0

*Nonusers are defined as not exposed to the risk of unintended pregnancy if they have not had intercourse in the last three months; are pregnant, postpartum or seeking pregnancy; or are noncontraceptively sterile. All other women are considered to be exposed to risk.

†Subgroups may not add to total because of unreported information.

Table 7. Number of former pill users aged 15–44, by next contraceptive method used after the pill; and percentage distribution of those selecting each next method, by current use status and current method, 1982

Current status and method	Total	Next method						
		None	Sterilization	IUD	Diaphragm	Condom	Other barrier	Other
No. (in 000s)	**26,046**	**5,031**	**5,435***	**3,291**	**2,655**	**4,384**	**3,044**	**2,125**
Not using a method	**40.3**	**100.0**	**17.8**	**27.3**	**27.2**	**27.8**	**33.8**	**28.3**
Not exposed to risk†								
Sterile	13.0	22.6	15.1	10.6	5.9	6.6	15.3	7.2
Pregnant, postpartum or seeking pregnancy	13.3	33.9	0.2	9.5	12.6	12.6	10.5	10.5
No coitus in last 3 mos.	6.2	18.2	1.9	1.3	3.9	3.5	4.7	6.9
Exposed to risk	7.8	25.1	0.6	5.9	4.7	5.1	3.3	3.7
Using a method	**59.7**	**0.0**	**82.2**	**72.7**	**72.8**	**72.2**	**66.2**	**71.7**
Sterilization	30.4	0.0	81.6	28.3	15.8	18.8	29.1	18.1
IUD	6.4	0.0	0.0	34.7	5.5	5.2	3.1	2.8
Diaphragm	6.2	0.0	0.0	2.5	41.6	3.6	5.7	4.6
Condom	8.5	0.0	0.0	2.5	3.3	39.3	7.4	4.4
Other barrier	3.8	0.0	0.6	2.7	3.3	1.5	18.7	6.7
Other	4.4	0.0	0.0	2.0	3.3	3.8	2.3	35.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Some women who had reported sterilization as their next method were not classified as using sterilization currently because (1) they reported that the sterilization had not been performed for the purpose of family limitation (see reference 17), (2) they had used male sterilization as the next method and were no longer with the sterilized partner, or (3) they had had a female sterilization reversed.

†See footnote * to Table 6.

Note: In this table and Tables 8–9, Ns may not add to totals because of unreported information.

Table 8. Number of former pill users aged 15–44 who discontinued pill use in a pregnancy interval ending in 1979 or later; and percentage distribution, by continuity of method use after last pill use; according to selected characteristics, 1982

Characteristic	No. (in 000s)	Continuity of method use			
		No break	Break of ≥1 mo.*		Total
			Not exposed†	Exposed	
Total	**15,760**	**54.4**	**18.7**	**27.0**	**100.0**
Age at last use					
<20	2,283	37.9	24.3	37.7	100.0
20–24	5,124	47.7	23.8	28.5	100.0
25–29	4,551	58.0	17.9	24.1	100.0
30–44	3,801	68.9	9.3	21.8	100.0
Parity at last use					
0	7,008	46.5	25.0	28.4	100.0
1	3,290	50.3	22.6	27.1	100.0
2	3,331	66.3	7.6	26.1	100.0
≥3	2,130	67.6	9.1	23.3	100.0
Race					
White	13,450	57.6	19.3	23.1	100.0
Black	1,922	35.6	13.9	50.4	100.0
Education (in yrs.)					
<12	2,807	41.3	22.3	36.5	100.0
12	6,171	53.2	19.4	27.5	100.0
≥13	6,782	60.8	16.6	22.6	100.0

*Includes women who had not used another method by the time of the survey.

†In this table and Table 9, women who reported that they stopped using the pill because they were no longer having intercourse, they were pregnant or they were trying to become pregnant.

only about three-tenths of such women were still relying on that class of methods. In general, women who had changed methods were much more likely to have switched to one that was more effective rather than less effective than their "next" method; sterilization was the leading method by a large margin among women who had switched.

Continuity of Method Use

The pregnancy risk experienced by women who quit the pill depends on the promptness with which they adopt a new method and on the efficacy of that method. In Table 8, former pill users are classified by whether they adopted their next method right away or had a break in contraceptive use. Women are defined as having had a break if they either had used no method after quitting the pill or had adopted their next method at least one month after the date of last pill use. The table is limited to women whose last pill use occurred in a pregnancy interval ending in 1979 or later, because exact dates of last pill use are available only for these women.

Fifty-four percent of former pill users went on to a new method without a break in contraceptive practice. Nearly 20 percent had some break in use, but cited nonexposure to risk as a reason for quitting the pill. The remainder—27 percent of former users—had a break in method use and were apparently exposed to the risk of unintended pregnancy. (The qualifier "apparently" is used here because women were not directly asked whether they were exposed to risk when they stopped pill use. Some women who were not exposed may have failed to include nonexposure among their reasons for quitting.)

The proportion experiencing a break in method use was sharply higher among young women (62 percent of those younger than 20) than among older women (31 percent of those aged 30–44). The reason is that the younger women more often discontinued contraceptive practice both while exposed to the risk of unintended pregnancy (38 percent compared with 22 percent) and while not exposed (24 percent vs. nine percent). The proportion reporting an interruption of contraceptive use was also higher for women of parity 0–1 than for higher parity women, primarily because the low-parity women were more likely to interrupt use as a result of nonexposure to risk.

Interrupted contraceptive practice was about 50 percent more common among black women than among white women (64 percent compared with 42 percent). White women were somewhat more likely than black women to break method use because of nonexposure (19 percent compared with 14 percent), but were much less likely to break use while exposed to risk (23 percent compared with 50 percent). It is possible that differences in the completeness with which women reported reasons for quitting the pill may partially account for the black-white and other differences. Women with fewer than 12 years of education were more likely than other women to have experienced a break in use, primarily because they had a higher propensity to break use while exposed to risk. When the analysis is confined to women aged 20–44, the proportion breaking use because of nonexposure is unrelated to education, but the proportion breaking use while exposed to risk remains substantially higher for women with fewer than 12 years of schooling (not shown).

Unintended Pregnancies and Abortions

One might expect that switching from the pill to a less-effective method or to no method (either temporarily or permanently) would increase the likelihood of unintended pregnancy and abortion. The ability to test this hypothesis with Cycle III data from the NSFG is limited: Appropriate comparison groups are not available; and the only women for whom we can examine such outcomes are currently married whites, because they are the only group whose reporting of abortions is complete.[19] As Table 9 shows, 12 percent of married white women who quit the pill in pregnancy intervals ending in 1979 or later subsequently experienced an unintended pregnancy, and one percent had an abortion. The incidence of unintended pregnancy followed the pattern one would expect from the relative efficacy of the next method chosen: six percent among those opting for sterilization or the IUD, 16 percent among those choosing barrier methods and 23 percent among those using other methods. Only 14 percent of the women who went from the pill to no method had an unintended pregnancy; however, more than half of those using no method were not sexually active or were noncontraceptively sterile (not shown).

Continuity of method use also affected the likelihood of unintended pregnancy: Only 10 percent of those who switched immediately from the pill to another method had an unintended pregnancy, compared with 17 percent of those who broke off method use for one month or more. When we removed women who reported that they quit use because of nonexposure from among those who had a

Table 9. Number of currently married white women aged 15–44 who quit pill use in an interval ending in 1979 or later, percentage who subsequently experienced an unintended pregnancy, and percentage who had an abortion, by next method used after the pill and continuity of method use, 1982

Method use	No. (in 000s)	% had unintended pregnancy	% had abortion
Total	**9,655**	**12.4**	**1.2**
Next method			
Steriliz. or IUD	3,410	5.6	0.0
Barrier*	3,679	15.6	1.7
Other†	793	23.3	5.7
None	1,773	13.9	0.5
Continuity of use			
No break	6,052	9.7	0.6
Break of ≥1 mo.‡	3,469	17.1	2.4
Not exposed	1,621	6.8	0.7
Exposed	1,848	26.2	4.0

*Condom, diaphragm, foam, suppository and jelly or cream.

†Periodic abstinence, withdrawal, douche and other.

‡Includes women who had not used another method by the time of the survey.

break in method use, the proportion having an unintended pregnancy was sharply higher—26 percent.

The proportion of former pill users who subsequently had abortions also varied with method effectiveness and continuity of method use. Women who adopted "other" methods were more than three times as likely to have an abortion as those who switched to barrier methods, and women who experienced a break in method use and were exposed to risk were more than six times as likely to have an abortion as women taking no break. However, because the numbers are small and the sampling errors are sizable, none of these differences are statistically significant; consequently, these differentials should be considered to be suggestive rather than conclusive.

Discussion

The decline in pill use and the increase in contraceptive sterilization were indisputably the two dominant trends in contraceptive practice during the middle and late 1970s. This article demonstrates that although the two trends were related to one another, their coincidence did not represent a direct switching from the pill to sterilization. Most of the women who discontinued pill use prior to 1982 turned next to other nonpermanent methods of birth control. They did so because they were disproportionately young and of low parity when they stopped using the pill: Four-fifths were under age 30 and two-thirds had either no children or only one child. The proportion choosing sterilization as their next method exceeded one in four only among women who were 30 or older or who had at least two children at the time they ended pill use.

The research reported here suggests that the decline in pill use was driven largely by the perceived disadvantages of the pill, rather than by the attractions of other methods. Virtually all former users reported some physical problem associated with pill use as a reason for quitting the method, although only one in three quit on their doctor's advice. Fewer than one in 10 stated that they stopped using the pill in order to adopt a new method. It is unclear how much these responses (and indeed the rates of pill discontinuation themselves) were colored by the publicity given to the health risks of the pill during the 1970s; one analysis has made a good circumstantial case for the media's influence on pill and IUD discontinuation in the early 1970s.[20] To the extent that women were sensitized to the potential health risks of the pill, they may have been quicker to perceive physical changes caused by the pill, more likely to define them as harmful or dangerous and quicker to discontinue use because of them. On the other hand, the nearly universal reporting of pill-related physical problems by former users cannot be dismissed simply as a result of undue media influence. Former users did perceive unwelcome physical problems during pill use, whether or not they actually were caused by the pill, and health care providers must be sensitive to these perceptions if they wish to minimize discontinuation.

In recent years, the media have presented a more positive view of the health effects of pill use,[21] reflecting findings that the pill offers a degree of protection against some kinds of cancer and against pelvic inflammatory disease.[22] If the hypothesis linking media coverage and contraceptive choice is correct, this favorable publicity could lead to higher rates of pill use and lower rates of pill discontinuation. At the same time, the recent publicity given to condom use as a preventive measure against AIDS and other sexually transmitted diseases could adversely affect levels of pill use, if condom use is substituted for oral contraceptive use.

This article has not attempted to quantify the effect of the decline in pill use on the level of unintended pregnancy and abortion. Nevertheless, the existence of such an effect is highly probable given that (1) approximately one-quarter of the women who stopped using the pill had a break in method use after quitting while apparently remaining exposed to the risk of unintended pregnancy, and (2) most former users switched to less-effective methods or to no method at all. We have shown that among currently married white women, the likelihood of experiencing an unintended pregnancy after quitting the pill depends strongly on the continuity of contraceptive use and the effectiveness of the next method used. Taken together, the findings on women's reasons for quitting pill use and on the risks of unintended pregnancy following pill discontinuation underscore the importance of health care providers' following through with women who are taking the pill—by discussing and managing any physical problems the women are experiencing, helping the women make an informed decision about discontinuing the pill and choosing a new method, and helping them make any switch with little or no break in method use. Unfortunately, with the virtual removal of the IUD from the U.S. market, there is no single method comparable to the pill in efficacy* that is available to a woman who has not yet completed her childbearing but wants to discontinue use of the pill.

This article has presented a snapshot of women who had stopped taking the pill by the time of the 1982 interview. Many of these women may have resumed pill use since then, or eventually will resume it. The 1988 National Survey of Family Growth will provide new evidence on the overall trend in pill use and on trends among those groups who have traditionally adopted the pill in greatest numbers—young women, never-married women and childless women.

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(Continued from page 239)

to be stigmatized, poor and exhausted; not surprisingly, their children suffer.

Central to the policy agenda for helping families avoid poverty are reforms that advance economic equality for women by eliminating, for example, gender segregation in vocational education and occupational training; handicaps . . . such as the lack of guaranteed child-support payments; ongoing discrimination against women in the labor market; barriers to single mothers' acquiring the education required for economic self-sufficiency; and regulations that require mothers to work but do not offer them child-care subsidies adequate for securing quality child care.

The omission of any reference in these articles to policy reforms concerned with women's economic well-being seriously misleads your readers.

Elizabeth A. McGee, Director
Support Center for Educational Equity
for Young Mothers
Academy for Educational Development
New York, N.Y.

Abortion Training In Residency Programs

The recent article by Philip Darney et al. ("Abortion Training in U.S. Obstetrics and Gynecology Residency Programs," **19**:158, 1987) omitted a large number of residency programs that include training in abortion technique.

There are 381 three-year residency programs in family practice in the United States, all of which include ob-gyn training. Although there have been no surveys of the abortion training provided by these programs, best-guess estimates by informed sources indicate that virtually all of them (except those affiliated with Catholic institutions) make abortion training available on an elective basis, at a minimum.

Of the 35,000 active members of the American Academy of Family Physicians, 38.5 percent provide obstetric care. Most family physicians provide birth control services as part of their routine practice. Many are their patients' first contact for birth control information, since they provide other services (for example, physicals for school sports) that put them in touch with adolescents.

Family physicians are frequently overlooked when resources for birth control services and pregnancy terminations are evaluated. To better assess the availability of these services, researchers should include family physicians and family practice training programs in future surveys.

Brent A. Blue, M.D.
Jackson, Wyo.

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DIGEST

British Study Suggests Long-Term Pill Use Before First Term Pregnancy Raises Risk of Breast Cancer

A recent British study suggests that women who use oral contraceptives before a first full-term pregnancy and continue to use them for four or more years are 2.6 times more likely to develop breast cancer than are women who never use the pill.[1] The longer the pill use, the greater the risk. The association did not hold for women whose cancer was diagnosed when they were 45 or older. When the researchers examined pill type, they found an association only with the use of preparations containing ethinyl estradiol; pills containing mestranol showed, if anything, a protective effect associated with long-term use. The data indicate nothing about the possible effect of modern low-dose pills, including those containing ethinyl estradiol.

These findings conflict with the results of other research, including major population-based studies carried out in the United States and New Zealand.[2] The authors state that this discrepancy could be attributable to the failure of other investigators to consider latency (the 20 years or so after a prolonged period of use before the cancer appears and is diagnosed) and to differences in the type of pill used by women in the different countries (mestranol vs. ethinyl estradiol). However, a new analysis of the largest U.S. study on cancer and the pill fails to confirm the findings of the British study as to pill type.[3]

The British Study

The investigators studied 351 ever-married hospital patients whose breast cancer was diagnosed before they were 45 years old and 774 patients who were 45 or older at diagnosis. For each case, the researchers selected a matched control, a currently married woman within the same five-year age-group who was in the same hospital for a medical or surgical reason not thought to be associated with contraceptive practice. The same interviewer asked each case and her matched control questions about their medical, contraceptive and social histories. The investigators adjusted the data for confounding variables where necessary and controlled for age at first term pregnancy. Childless women were analyzed separately.

As expected, a family history of breast cancer or of benign breast disease and late age at first term pregnancy were found to be more common among cases than among controls. Early menarche, however, was found to be no more common among women with breast cancer than among controls. Although overall pill use did not differ much between cases and controls, use was much greater among the younger women, especially those who had used the pill before a first term pregnancy. Overall, "there was an excess of [pill] use before first term pregnancy among cases as compared with controls aged less than 45."

A multiple logistic analysis of total pill use showed no statistically significant difference in the relative risk of breast cancer between cases and controls, both before and after adjustment for confounding variables. There was, however, "a slight suggestion of an increasing risk with very long-term use in the younger age-group." A similar analysis of women under 45 who had used the pill before a first term pregnancy showed a significantly higher risk associated with increasing duration of use: The risk among women who had used the pill for more than 48 months relative to that among never-users was 2.6 (see Table 1). The authors discount the likelihood of substantial bias in women's recall of their pill history or in the selection of controls. (Although controls and cases were not matched for parity, about 90 percent of women in both groups had given birth at least once.) The investigators also adjusted for the effect of possible confounding variables, particularly age at first term pregnancy. They found no significant differences between the groups that might have been attributable to a greater likelihood of breast examination among pill users.

Women in the study used about 30 different types of oral contraceptives; all types contained one of two synthetic estrogens (mestranol and ethinyl estradiol) and one of eight different progestogens, each in varying doses. Again using multiple logistic analysis, the investigators found no increased risk of breast cancer among women who had used pills containing mestranol before a first term pregnancy. (Indeed, there appeared to be a protective effect with long-term use, although it was not statisti-

Table 1. Adjusted relative risk* of breast cancer associated with pill use before first term pregnancy among women under 45, by type of estrogen in pill, according to duration of use, British and CASH studies

Type of estrogen	Months of use		
	1–12	13–48	>48
Total			
UK study	1.02 (0.5–1.9)	1.97 (1.0–3.8)	2.59 (1.3–5.4)
CASH	1.3 (1.0–1.7)	1.1 (0.9–1.5)	1.2 (0.9–1.6)
Ethinyl estradiol			
UK study	1.21 (0.50–2.93)	2.16 (0.95–4.94)	2.62 (1.15–5.95)
CASH	1.0 (0.6–1.5)	1.2 (0.8–1.7)	0.9 (0.6–1.5)
Mestranol			
UK study	0.43 (0.11–1.65)	1.46 (0.62–3.45)	0.57 (0.18–1.79)
CASH	1.1 (0.8–1.6)	1.1 (0.9–1.4)	1.2 (0.9–1.6)

*Comparison group is never-users; 95 percent confidence intervals are given in parentheses. The estimates in the British study are adjusted for age at first term pregnancy, age at menarche, menopausal status, history of benign breast disease and family history of breast cancer. The estimates in the CASH study are adjusted for age at menarche, parity, age at first term pregnancy, history of benign breast disease before any pill use and family history of breast cancer.

Sources: **British data**—see reference 1; **CASH total**—see reference 2, The Cash Study, Table 4; **other CASH data**—see reference 3.

cally significant. However, women who started taking pills containing ethinyl estradiol before a first term pregnancy and continued their use for more than four years had 2.6 times the risk among never-users, a difference that is statistically significant. The investigators are puzzled about this association. They note that "the possibility of a different effect of the two synthetic estrogens has little basis in either theory or . . . empirical observation," because mestranol is quickly metabolized into ethinyl estradiol. They speculate that the difference is a consequence of the correlation of mestranol and ethinyl estradiol with some other aspect of pill composition. At any rate, they state that "more endocrinological work is required, as well as observational confirmation, before any action is taken on these findings."

In the United States, all pills with more than 50 mcg of estrogen contain mestranol; two brands with exactly 50 mcg of estrogen—Norinyl 1+50 and Ortho-Novum 1/50—contain mestranol; all of the triphasics and pills with fewer than 50 mcg of estrogen contain ethinyl estradiol.[4] About four percent of U.S. pill users still depend on preparations containing more than 50 mcg. of estrogen; about 71 percent take pills with fewer than 50 mcg[5]

Latency

The investigators found that among women who used pills containing ethinyl estradiol before a first term pregnancy, the rise in the relative risk of breast cancer "starts at about four years before diagnosis and reaches a maximum at 10 years." For women using pills containing mestranol, there is a pattern suggesting "a protective effect associated with long-term use a long time before diagnosis, although the finding falls short of statistical significance." The authors point out that if there is a long latent period, as these data suggest, "nothing can be said . . . about the particular influence of modern low-dose pills on breast cancer risk because these pills were not introduced commonly until the mid-1970s." However, there is some suggestion in the data that pills containing ethinyl estradiol introduced recently have little association with any increased incidence of breast cancer.

The British investigators emphasize that their findings are only "suggestive of an effect" and should be considered "tentative" and as pointing "in plausible directions." The biological plausibility of their findings, the authors state, is based on earlier arguments that a first term pregnancy may protect against the development of breast cancer and that exposure to estrogens before pregnancy may play an important part in cancer formation. The study data are consistent with these hypotheses, the authors state, since pill use "only after first pregnancy is associated with a slight (but nonsignificant) protective effect." The researchers offer a pair of reasons for the differences between their results and those of U.S. studies: Pill use among young American women may have taken off about five years later than among young British women (although hard data are not available to support this hypothesis); in addition, a much higher proportion of women in the major U.S. study than of those in the British study used pills containing mestranol. According to the investigators, differences within a major Scandinavian study that found a greater incidence of breast cancer associated with long-term use among Swedish but not Norwegian women may also be attributable to the earlier initiation of pill use by young people in Sweden.

The researchers argue that if more definitive answers are to be obtained, it is "essential to pool data from different studies, taking . . . into account" the issues of latent effect and problems of recall of pill type. To investigate the hypotheses suggested in their study, the researchers advocate the "assiduous collection of epidemiological data, in which contraceptive histories are carefully recorded and, as far as possible, validated."

The investigators conclude, "It remains quite possible that different oral contraceptive preparations taken at different times in a woman's reproductive life may have quite different, but important, effects on breast cancer risk."

The U.S. Study

The largest study of the possible relationship between oral contraceptives and breast, endometrial and ovarian cancer was the Cancer and Steroid Hormone (CASH) Study, carried out by the U.S. Centers for Disease Control and the National Institute of Child Health and Human Development between 1980 and 1982. Interviews were conducted with 4,744 women who were 20–54 at the time an initial diagnosis of cancer was made. These cases were obtained from population-based cancer registries in eight areas of the United States. During the same period, investigators also interviewed 4,752 women who were free of the study cancers; these controls were of similar ages to and lived in the same areas as the cases. Earlier analyses of the CASH data showed a substantial long-term protective effect of oral contraceptive use against the development of ovarian and endometrial cancer.[6] These analyses also showed no increased risk of breast cancer, even among women who had relied on the method for 15 or more years and had started pill use before their first term pregnancy.[7] They did not, however, look specifically at possible differences in breast cancer risk between women who used pills containing ethinyl estradiol and those who used pills containing mestranol. Additional analyses were therefore undertaken to examine this potential effect.

The investigators used the CASH data to test the hypothesis that women who take pills containing ethinyl estradiol before a first term pregnancy are more likely to develop breast cancer than are comparable women using pills that contain mestranol.[8] The analysis was restricted to women aged 20–44 because the British study had reported an adverse effect of the pill on breast cancer risk among women under 45. The study was based on 1,679 cases and 1,689 controls. Standard methods of logistic regression were used to adjust the estimates for the major known risk factors for breast cancer (see Table 1). The distributions of cases and controls for various characteristics were the same as those found in the analyses of latency.

As may be seen in Table 1, there was no increased risk of breast cancer among women who had used pills containing ethinyl estradiol for a long time before a first term pregnancy. For women who had used such pills for more than four years, the CASH study revealed a relative risk of 0.9; the British study, by comparison, showed a risk of 2.6. The relative risk for similar women who had used pills containing mestranol was 1.2 in the U.S. study and 0.6 in the British study; neither finding was statistically significant.

When the U.S. researchers confined their analysis to parous women and examined not only duration of exclusive use of pills with ethinyl estradiol, but also latency, they found "no suggestion of increased risk or evidence of a latent effect." They also found "no suggestion of elevated breast cancer risk" among nulliparous women who had used only pills containing ethinyl estradiol for more than four years.

The U.S. investigators believe that the British finding is a result principally of the trend found among parous women. They also question the validity of the British matching control procedure for women under age 45, since 84 percent of these controls had never used the pill before a first term pregnancy (compared with 69 percent of controls in the U.S. study). This pattern, they say, appears to be inconsistent with the British investigators' claim that young U.S. women started using the pill about five years later than did British women. Because of the contradictory results of research on breast cancer and the pill, Britain's Committee on Safety of Medicines published a statement concurrent with release of the study stating that "the newly reported findings do not indicate the need to change at this time the current advice regarding the use of the presently available contraceptive agents.... The committee remains of the view that women receiving oral contraceptives should be prescribed a product with the lowest suitable content of both estrogen and progestogen."[9] In addition, 10 members of the International Committee for Research in Reproduction noted in a letter to the journal in which the British study appeared that "an uncritical response to the present data may lead to unjustified anxiety and an unnecessary change of contraceptive practice. ... Nevertheless, similar careful analyses are still needed to resolve any relationship between breast cancer and [pill] use."[10]

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Women Who Undergo Tubal Ligation Before Age 30 May Be at Higher Risk of Subsequent Hysterectomy

Women who are sterilized before the age of 30 may run a somewhat higher long-term risk of having a hysterectomy than women who do not undergo tubal ligation at an early age. Women who are 30 and older when they are sterilized face no such increased risk, according to a recently published Canadian study.[1]

The study focuses on the experience of all 4,374 women aged 25–44 in the Canadian province of Manitoba who underwent tubal sterilization in 1974. The comparison group consisted of 6,835 women of the same ages (stratified by residence) who had had neither a tubal ligation nor a hysterectomy before July 1, 1974. Both groups of women were followed over a two-year period in one analysis and over an eight-year period in a second stage of the investigation. The author of the study is confident of the completeness of the data because Manitoba has a universal medical insurance program in which reimbursement of hospital and physician charges is contingent upon the submission of reports of all medical services provided. Earlier research has confirmed the reliability and validity of such claims forms.

Because of Manitoba's universal reporting system, the researcher was able to examine the health characteristics of the sterilized women in the study as well as all the health services that they received over a four-year period centering around the date of their tubal ligation. The medical histories of women in the comparison group were recorded between July 1, 1972, and June 30, 1976. For the women in the case group, the date of sterilization is the focal point of the analysis, whereas for women in the comparison group, the focal point is July 1, 1974. In the short-term analysis, the researcher looked at differences between the two groups in the frequency of subsequent hospitalization for any reason, the incidence of subsequent major gynecologic surgery (hysterectomy) or minor surgery (dilatation and curettage) and the rate of hospitalization for the treatment of menstrual disorders. In the eight-year follow-up, the only outcome examined was subsequent hysterectomy. In both analyses, women were classified into five-year age-groups, and in the second analysis, the data were also examined in terms of the women's contraceptive and marital status and a large number of variables measuring prior use of physician and hospital services. However, no data were available on the type of contraceptive method the women had used, their parity or the sterilization techniques used in their tubal ligations. In the absence of these last two pieces of information, it was assumed that women whose medical records indicated that the sterilization had been performed on an outpatient basis or had involved only a short hospital stay had been operated on laparoscopically; and it was assumed that women who had undergone postpartum sterilization were of high parity. When women who had had a hysterectomy because of a diagnosis of cervical cancer were removed from the analysis, the results were the same as when they were left in.

Findings

The two-year follow-up revealed an identical incidence of subsequent hysterectomy for the case and for the comparison group (1.8 percent each). However, the analysis showed that women who were 25–29 years old when they were sterilized were more likely than women in the comparison group to undergo hysterectomy within two years following the tubal ligation (1.3 percent, compared with 0.7 percent). The difference was not statistically significant. There was a statistically significant difference between the two groups in subsequent hospitalization. The age-group accounting for the far higher rate of hospitalization among sterilized women was the 25–29-year-olds, of whom 18.8 percent, compared with only 8.0 percent of comparison women, were hospitalized within two years of their tubal ligations.

Contrary to the widely publicized theory that sterilization may lead to increased menstrual irregularities in women, analysis of the Manitoba data revealed no rise in the rate of subsequent dilatation and curettage or diagnosis of menstrual disorders among the case group.

In the long-term analysis (eight years of follow-up), the investigator found confirmation of the pattern indicated by the short-term calculations. Women who were

25–29 when they underwent sterilization experienced a higher risk of hysterectomy than did comparable women who had not been sterilized, and the difference was statistically significant. To test the replicability of the results, the investigator performed the same analysis among Manitoba women who were sterilized two years later—in 1976. The findings were identical, which suggests that they cannot be dismissed as spurious. Among women in the three remaining age-groups (30–34, 35–39 and 40–44), the differences between those who had and those who had not undergone tubal ligation were inconsistent and not statistically significant.

Among the youngest age-group, the relative risk of hysterectomy was about twofold, and it increased over time. After controlling for previous medical history (menstrual disorders, gynecologic cancer, visits to many types of specialists and hospitalization), the investigator found that the relative risk for young women was reduced somewhat (to 1.6).

The author of the study cautions that the results are methodologically limited by the lack of data about the specific contraceptive methods used by the women involved. She notes that since the women in the comparison group—especially those under the age of 35—would have continued to need a form of birth control, and would probably have used the pill, their use of this method might have lessened the symptoms of menstrual disorders that might otherwise have led to hysterectomy. However, she points out, the risk estimates did control for previous menstrual disorders.

In conclusion, the researcher suggests that younger women who are contraceptively sterilized may be different from older women in a number of ways: They have probably had more children and probably began sexual activity and got married at an earlier age than other women. This different reproductive and sexual history possibly makes younger women a "poor gynecologic risk" for tubal ligation.

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WHO Guidelines on Steroidal Contraceptives Stress Postmarketing Surveillance to Better Protect Users

The World Health Organization's Special Programme of Research, Development and Research Training in Human Reproduction (HRP) has developed new guidelines for the testing of steroidal contraceptives that, if implemented, would drastically alter current approaches to testing. The guidelines place much more emphasis than do current testing procedures on "meticulous early studies in humans and careful and prolonged postregistration surveillance."[1] The guidelines were promulgated at a symposium held February 2–5, 1987, in Geneva. The report emphasizes that if effective postregistration surveillance is to become a reality, it will require the cooperation of pharmaceutical companies, of government agencies and of international organizations.

The HRP document indicates that current procedures for testing new steroidal contraceptives place undue emphasis on types of prolonged animal research that provide little guidance as to the probable effects on human beings and neglect important areas of research needed to provide timely and adequate protection to potential users.

Currently, for example, the U.S. Food and Drug Administration (FDA) requires 90-day studies of possible drug toxicity in rats, dogs and monkeys before even a few human subjects can be studied for dose response; one-year toxicology studies using the same animals before the second phase of human testing (usually involving 50 subjects over three menstrual cycles) can begin; completion of two-year studies of rats, dogs and monkeys; and initiation of seven-year studies of dogs and 10-year studies of monkeys prior to the start of large-scale human studies for clinical efficacy and acceptability and for the assessment of side effects. For studies of beagle bitches, doses of between 10 and 25 times the anticipated human contraceptive dose are required, based on a milligram-per-kilogram of body weight. In vivo and in vitro studies must be conducted to predict potential gene mutations, chromosomal aberrations and carcinogenicity, even "though the predictive value of the carcinogenic risk in the human is unclear." Such studies are also needed to determine the effects of the drugs on the reproductive performance of treated animals—to find out whether the product is toxic to their embryos or fetuses or if it could adversely affect the postnatal development of their offspring.

The HRP report emphasizes the importance of testing for the possible toxicity of plasticizers, catalysts and other vehicles used in delivery systems *before* testing for toxicity of the steroid itself. Perhaps more important, the HRP report points out, "there is no evidence that . . . toxicity testing of steroids at very large doses (e.g., 500–1,000 times the anticipated human dose) has been useful in predicting toxic effects in humans."

The report also takes issue with some of the animal models required for toxicity testing by the FDA and other regulatory agencies. Species such as the rhesus monkey, for example, exhibit processes of absorption, distribution, metabolism and excretion of steroids that are similar to those found in humans. However, beagle dogs, because of their proclivity for developing breast tumors, have been found to be so inappropriate that "requirements for [carcinogenicity] testing in this animal have been discontinued in many countries," the report notes. Studies of safe and effective dosage, based on "high," "intermediate" and "low" doses of the drug calculated by body-weight equivalence "do not reveal toxicity [to humans]," according to the HRP report, "but rather an exaggerated pharmacological response to excessive doses of estrogens and/or progestogens." The report criticizes the milligram-per-kilogram-of-body-weight approach to evaluating dose-response, "since the pharmacological activity of different steroids varies with the species-specific characteristics of each compound. . . . " The report is also critical of the excessive amount of time often required for animal testing for toxicity. In general, the report states, the duration of animal treatment should be no more than six months, except for such special cases as the testing of a long-acting steroid that is not completely eliminated from the body within the six-month period. Long-term carcinogenicity studies need be conducted for no longer than 80 weeks in the mouse or two years in the rat, according to the HRP report. Because of the fact that sensitivity to estrogens differs with each animal species, rodent studies of the toxicology of estrogen-progestogen combinations do not provide results that can be extrapolated to humans. The report suggests, therefore, that human studies are needed "to assess possible pharmacokinetic and metabolic interactions."

Clinical Trials

The guidelines place major emphasis on establishing the pharmacokinetic profiles and pharmacodynamic effects of a newsteroidal drug or drug-releasing device in humans as soon as initial toxicity studies in rodents and pharmacodynamic studies in appropriate animal species are completed. They recommend that initial clinical trials be carried out as soon as possible in humans in order to assess the pharmacological effects of the drug; to evaluate different dose levels (to ascertain the minimum effective dose); and to provide information that will assist in the selection of doses for further animal studies. After completion of repeated studies of dose toxicity and reproductive impact in animals, the document recommends assessment of efficacy and side effects, initially with 50–100 subjects, and subsequently in large-scale human trials. It recommends that these studies be randomized between the test drug and a comparable established birth control method whenever feasible and appropriate. A study of about 1,000 subjects, with a minimum of 10,000 months of exposure to a new drug or device, is considered sufficient by the HRP group "to allow an adequate assessment of safety and efficacy prior to registration and wider usage."

Efficacy of a contraceptive steroid should be measured by the pregnancy rate, and that of an abortifacient steroid (like the antiprogestin RU 486) should be measured by the abortion rate. For a male method, impairment of spermatogenesis and sperm function may be used instead of the pregnancy rate for the couple. The report emphasizes the importance of studying the return of fertility following discontinuation of the method, "a component often missing from [past] studies of efficacy and side effects."

The report points out that larger scale field studies of a new method, which are undertaken in the context of its actual use in family planning programs, are designed to confirm acceptability, use-effectiveness, continuation of use and side effects (including the degree to which these are tolerated and how to manage them). Such studies are also carried out to evaluate specific service-related needs (e.g., provider training, client counseling and logistics). Field trials may involve as many as 2,000 subjects over a period of 1–2 years.

Postregistration Surveillance

Claiming that "many of the adverse effects of drugs in humans can be discovered only after the drug has been in widespread use," the report places special emphasis on surveillance of drugs after they have been registered with a regulatory agency and after marketing has begun. Clinical trials, the report points out, can "detect only relatively common side effects that occur over a short period during or after the use of a drug." The report identifies five strategies that have been used in the evaluation of drugs after they have been approved by regulatory agencies: reports of adverse drug reactions; large-scale experimental studies; formal epidemiological studies (of the cross-sectional, case-control or cohort type); indirect correlational studies; and investigations of outbreaks of disease.

Scattered "reports of adverse drug reactions have been the starting point of identification of almost all of the adverse effects of oral contraceptives," the report points out. These effects either have been confirmed (e.g., for thromboembolism and myocardial infarction) or have failed to be confirmed (e.g., for Down syndrome in babies whose mothers had taken the pill just prior to conception) by scientific studies. Some scientific investigation of possible adverse side effects has revealed beneficial effects of oral contraceptives, such as protection against ovarian and endometrial cancer. When high doses of estrogen were found to be associated with thromboembolic disease, low-dose pills were recommended, marketed and widely used, with the result that the incidence of thromboembolic disease in pill users declined. Isolated reports of endometrial cancer in women using sequential pills were confirmed by epidemiological postregistration studies, which showed that sequentials were no more effective than combined estrogen-progestogen pills in preventing pregnancy, but that they did, indeed, increase the risk of endometrial cancer. This type of pill was withdrawn from the market.

The injectable steroid Depo-Provera, on the other hand, has only recently begun to be adequately studied following its marketing and widespread use in many countries. As a result, some countries (including the United States) have not approved the use of Depo Provera for fertility regulation, basing their decision on what many consider to be inappropriate animal toxicity studies using the beagle dog.

Most significantly, perhaps, the HRP report declares:

> The most important general recommendation that can be made about postregistration surveillance of new contraceptive steroids is that an explicit plan for carrying out such surveillance should be made in advance of their widespread use so that timely information on their effects in women will be available to individuals and to policy-makers. Manufacturers, government agencies and international organizations should share the burden of responsibility for funding and initiating these projects. Postregistration surveillance should be an integral part of plans for the introduction of new contraceptive steroids in settings where the infrastructure to carry out such surveillance exists.

The report points out that "since contraceptive steroids are likely to be used by a large number of healthy people, any change in the risk of disease of high incidence resulting from these drugs will be of great significance in public health terms." Thus, studies should be able to detect even small changes in risk. Studies should examine the risk of cancer, cardiovascular disease and other conditions that have been documented in previous studies. Such research should seek to ascertain the benefits as well as the risks of use, the report states. "Finally, epidemiological studies that permit the estimation of absolute risks and not just relative risks should be carried out," because the use of relative-risk estimates often needlessly alarms and confuses potential users, when the actual risk is very small (e.g., the risk of developing benign liver tumors after prolonged oral contraceptive use).

Although the spontaneous reporting of adverse reactions will continue to play a role as an early postregistration surveillance method, cohort studies can also be started at an early stage, the HRP report notes. Although case-control studies can be undertaken only after there are large numbers of users, the report states that the "timeliness of information . . . should be improved by anticipating the need to conduct case-control studies of cervical, endometrial, breast and ovarian cancer 5–10 years after the introduction of the new contraceptive steroid." As soon as the method is introduced, ties could be developed with tumor registries or with hospitals where patients with these diseases are treated. Scientists should be trained to conduct properly designed case-control studies relevant to their own countries.

Even in countries that do not have the infrastructure needed to monitor adverse reactions to drugs, according to the report, short-term schemes could be set up to monitor adverse reactions to new steroids. Health personnel can also be trained in the accurate reporting of adverse drug reactions (e.g., by using standardized forms) while they are being trained to provide the new method.

Finally, the report notes, carefully planned studies of trends in the incidence and prevalence of diseases known to be of concern should be undertaken more extensively. If, for example, information on all hospitalizations for myocardial infarction or for venous thromboembolism reported in a large urban area the year before and several years after the introduction of a new contraceptive steroid were to show no change in these rates, that would constitute reassuring evidence that the new method is not causing an increase in such diseases.

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Three Years After Enactment, Child-Support Laws Appear to Increase Payments by Absent Fathers

A series of state laws to enforce the collection of overdue child-support payments from absent fathers proved to moderately increase the amount of child support paid to women who were owed it in the early 1980s. Such laws appear to have been particularly effective in increasing child-support receipts among black women. These are some of the findings of a recent analysis of data from the 1979 and 1982 Current Population Surveys (CPS).[1]

The most recent data indicate that only six out of every 10 American women raising children whose fathers are absent are awarded child support. Of these women, only one-half receive the full amount due them; one-quarter receive partial payment; and one-quarter receive no child-support payment at all.[2]

The first step toward a federal child-support enforcement program was the 1975 passage of Title IV-D of the Social Security Act, requiring each state to develop a program to establish paternity, locate absent parents, establish child-support obligations and then enforce them. In response to the federal mandate, individual states enacted various laws: Some established administrative procedures,* while others required mandatory wage withholding, garnishment of wages, liens against real and personal property, criminal penalties or automatic wage withholding.

In an effort to strengthen the nation's child-support enforcement system, in 1984 the federal government enacted the Child Support Enforcement Amendments, which required all states to use automatic wage withholding to collect overdue child support, employ expedited legal processes to obtain and enforce support orders, provide for the collection of overdue support by intercepting state income tax refunds, initiate a process for imposing liens against real and personal property, and institute procedures for requiring security, bond or other guarantees.

In order to predict the probable impact of the 1984 federal law on future child-support payments, the investigators assessed the past effectiveness of state enforcement laws. They based their assessments on measures of the likelihood that a woman owed child support would receive it, and of the amount of child support recorded among those women who received some payments in 1978 and 1981. The analysis is based on data from the March/April Match File of the CPS for 1979 and 1982. Both of the April surveys included a supplementary questionnaire on child-support receipts among a nationally representative sample of divorced and separated women who had been awarded support and were supposed to receive payments in the preceding year. The samples consisted of 1,639 women in 1978 and 1,915 women in 1981.

Findings

In both 1978 and 1981, older, better-educated women were more likely to receive child-support payments than were women under the age of 30 and those who had not completed high school. However, whereas remarried women received significantly less child support than other divorced or separated women in 1978, by 1981 they received roughly the same amount as other divorced women, and separated women received significantly more.

In 1978, black women were 15 percent less likely to receive child support than were nonblack, non-Hispanic women. By 1981, however, racial differentials had diminished considerably: Black women were only six percent less likely to get the support owed them than were others. The investigators suggest that the improvement may be at least partly attributable to the Office of Child Support Enforcement's requirement that recipients of Aid to Families with Dependent Children, many of whom are black, use its resources for locating absent fathers and securing support from them.

Multiple regression analysis revealed that overall, in 1978, women living in states that imposed criminal penalties on fathers for nonpayment of child support were seven percent more likely to receive support than women living in states with no such penalties. Further, they received $182 more in child support than did women living in states without laws that imposed criminal penalties. In that year, liens and administrative procedures had no overall effect on child-support receipts.

Conversely, criminal penalties existing in 1981 had no significant impact on child-support receipts that year. However, women living in states that imposed liens on the property of delinquent fathers were five percent more likely than others to collect any payments, and they received $157 more in child support. Women in states that had administrative procedures available were four percent more likely to receive support than were those in other states, and they collected $122 more that year, on average.

Although mandatory wage-withholding laws (which require the issuance of a court order) had no effect on child-support receipts in 1978, after they had been in effect for at least three years, such laws were found to be positively related to child-support receipts. In states that had enacted such laws by 1978, women were 3.5 percent more likely to receive child support in 1981, and were paid $108 more in 1981, on average.

In 1978, automatic wage-withholding laws appear to have reduced the probability that a woman would receive support payments, and women living in states where such laws were in effect collected $37 less than did women in other states. However, by 1981, women living in states that had had automatic wage-withholding laws since 1978 were two percent more likely to collect child support, and they received about $74 more in payment.

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*Routine procedures to establish paternity and child-support obligations and to enforce such obligations that do not require judicial involvement or a court order.

For black women, criminal penalties imposed on fathers who were overdue in their child-support payments were negatively associated with child-support receipts in 1981. On the other hand, in 1981, administrative procedures—and automatic wage withholding and garnishment of wages—were found to be positively associated with the increase in child-support receipts among black women.

According to the researchers, there are two possible explanations for their surprising finding that wage-withholding laws appear to have been ineffective when first introduced. First, they point out, there may be a lag between enactment of the law and its implementation. Second, it takes time for mothers seeking help, and for nonpaying fathers (who may be deterred by the laws), to learn about the new laws.

The investigators note that their estimates of the effect of various laws on child-support payments are likely to be conservative because these measures did not take into account how rigorously individual states enforced such laws. Nevertheless, they conclude, there is sufficient evidence to indicate that liens, administrative procedures and automatic wage withholding are useful strategies in helping women receive the child support they are entitled to.

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Canadian Public Favors Contraceptive Messages Banned by TV Networks

Canadian television networks, like those in the United States, refuse to air advertisements for contraceptives, although most Canadians approve of such messages. Eighty-one percent approve of TV messages about contraception,[1] as do 60 percent of Americans (72 percent of Americans say that they would not be offended by such ads).[2] Canadians are even more approving of TV messages on the prevention of AIDS (91 percent) than they are of messages on the prevention of other sexually transmitted diseases (87 percent) or of teenage pregnancy (also 87 percent). By comparison, 74 percent of Americans approve of TV messages about AIDS prevention[3] and 85 percent approve of TV programs on teenage pregnancy.[4] Sixty-nine percent of all Americans believe that condom commercials should be aired on television in order "to prevent sexually transmitted diseases."[5]

The Canadian data are from responses to a poll conducted in April and May of 1987 by Gallup Canada among 2,078 adults. The U.S. results are from surveys taken by Louis Harris and Associates in July and August of 1986 and January and February of 1987. The Canadian poll asked respondents whether they approve or disapprove of television "messages" on the various topics. The U.S. survey asked about approval of TV "advertisements."

In Canada, both national TV networks, the Canadian Broadcasting Company and a commercial network, carry commercial advertisements and nonprofit messages. So do the three principal national commercial networks in the United States. Although networks in both countries refuse to carry messages about contraception, some local stations do so.

Access to Services; TV Messages

The Canadian survey sounded public opinion about access to contraceptive and abortion services, services dealing with the prevention of sexual abuse and school-based education about sexuality. It found that 46 percent of the public think that access to contraceptive and family planning services is too limited; only five percent consider it excessive. Abortion is a more controversial topic. Thirty-seven percent of respondents feel that there is too little access to abortion services; 22 percent say there is too much. Fifty percent of the public believe that there is not enough access to high-quality school-based education about sexuality, and only six percent think there is too much. Fifty-nine percent find the availability of educational and other services to prevent sexual abuse insufficient; and just four percent say there are too many such services.

Television messages on the prevention of AIDS receive overwhelming approval across all regions, income brackets, language groups, educational levels and age-groups, and equally among men and women. (The lowest level of approval—86 percent—is found among people who are not high school graduates.)

Approval of messages on the other subjects is highest among Canadians under 30 years of age, those with a university education and residents of cities of over 100,000 population. Approval tends to be highest in the eastern provinces and lowest in the West. For example, approval of messages about the prevention of teenage pregnancy ranges from 83 percent in the Prairie Provinces and British Columbia to 91 percent in Quebec and the Atlantic Provinces. It is 92 percent among Canadians with a university education, but 79 percent among those who have not graduated from high school; 93 percent among people under the age of 30, but 80 percent among those 50 and older; and 90 percent among residents of communities with a population of over 100,000, but about 84 percent among those who are residents of smaller communities.

Respondents who live in the Atlantic Provinces are more likely than other respondents to report that there is too little access to services. For example, 76 percent say they have too little access to services to prevent sexual abuse; 65 percent say the same of contraceptive and family planning services; 60 percent, of sexuality education; and 41 percent, of abortion ser-vices. All of these proportions are higher than the national averages.

Canadians under 30 years of age are more likely than older people to state that they have insufficient access to services for sexual abuse prevention (65 percent), sexuality education (56 percent), and services for contraception (53 percent) and abortion (44 percent).

With respect to abortion services, the differences in attitudes appear to reflect differences in opinions about the *need* for services as much as differences in actual service availability. Thus, among residents of small communities (under 10,000 population), where services are in fact least accessible, 28 percent say that there is too much access to abortion services; by comparison, in larger communities, just 16 percent share this opinion, and nationwide, the figure is 22 percent.

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DIGEST

Netherlands: Immigrants As Likely as Native Dutch To Use Modern Methods

Turkish and Moroccan women who immigrate to the Netherlands are as likely as Dutch women to use modern contraceptive methods, and they are much more likely to use modern methods than are women who remain in Turkey and Morocco. Levels of contraceptive use are higher among immigrant women who grew up in cities than among those who were raised in rural areas in their native countries. Neither the age at which women immigrate to the Netherlands nor the length of time they live there significantly affects their adoption of contraception; however, once they are living in the Netherlands, immigrants who maintain social contacts with Dutch women are more likely to use modern methods than are immigrants whose contacts are only with other immigrant women. These are some of the findings of a study carried out by Jeannette J. Schoorl, a researcher at the Netherlands Interuniversity Demographic Institute (NIDI).[1]

In 1984, the NIDI conducted a survey among 225 Turkish and 177 Moroccan ever-married women aged 15–49 who had immigrated to the Netherlands. Interviews were conducted in Turkish, Moroccan Arabic, Berber or Dutch, and covered such topics as the women's migration histories, marriage and birth histories, knowledge and use of contraceptive methods, use of family planning services, education and degree of contact with Dutch women (a measure of integration into Dutch society). The researcher compared the results of the survey with data from the 1978 Turkish Fertility Survey (TFS), the 1980 Moroccan Fertility Survey (MFS) and the 1982 Dutch Fertility Survey (DFS).

Overall, 72 percent of currently married Turkish immigrant women and 67 percent of currently married Moroccan immigrants living in the Netherlands practice contraception. About 80 percent of currently married Turkish immigrants in every age-group up to 40 use a contraceptive method, a level comparable to that for all women in the Netherlands. This high rate of use among Turkish immigrants compares with a prevalence of 15–30 percent among married women aged 15–24 who remained in Turkey, and 40–50 percent among those aged 25–40. Among currently married Moroccan immigrants, contraceptive prevalence peaks at 80 percent in the 30–34 age-group, but is considerably lower among younger women. By contrast, the MFS shows that in Morocco in 1980, contraceptive prevalence peaked among married women in the same age-group, but at a level of only 23 percent.

Sixty-one percent of Turkish immigrants aged 15–44 who practice some form of contraception use the pill, as do 85 percent of Moroccan immigrants and 39 percent of Dutch women. (The overall level of pill use among Dutch women is relatively low because a high proportion of older women have been sterilized.) Use of the pill is almost as common among contraceptive users who remain in Morocco (72 percent) as it is among those living in the Netherlands; however, Moroccan contraceptive users in the Netherlands are more likely to have been sterilized than are their counterparts who remain in Morocco (eight percent vs. three percent). Turkish immigrants who practice contraception are much more likely to use the pill than are their counterparts who remain in Turkey (61 percent vs. 18 percent), and they are also considerably more likely to have been sterilized (11 percent vs. two percent, respectively). Among both Turkish and Moroccan immigrants in the Netherlands, use of the pill decreases with age, but remains the most common contraceptive method.

Overall, 14 percent of Turkish immigrants report having had at least one induced abortion (four percent of women aged 15–24, 15 percent of those aged 25–39 and 26 percent of those aged 40–49). By contrast, a much lower proportion of Moroccan immigrants report having had an induced abortion. Abortion registration data indicate that young, unmarried Moroccan immigrants are more likely to have abortions than are their older, married counterparts. Schoorl suggests that there may have been underreporting of abortions, particularly among unmarried Moroccan immigrants.

The researcher used multivariate regression analysis to measure the relative strength of the association between selected sociodemographic variables and an immigrant woman's likelihood of using a contraceptive method; the analysis reveals that women who intend to space or limit their childbearing, those who grew up in an urban area of their country of origin, those who have 2–4 surviving children and those who maintain regular social contacts with Dutch women are the groups most likely to practice contraception. On the other hand, women who immigrate to the Netherlands when they are 40–49, childless women, those with one child and those who have been married only a short time (0–4 years) are the least likely to use a method. Except at older ages, age at immigration and length of residence in the Netherlands are not important determinants of contraceptive use.

According to Schoorl, the results of her study suggest that Turkish and Moroccan women who immigrate to the Netherlands were probably motivated to use effective methods of contraception even before they left their native countries, but were hampered by the limited availability of methods. Once in the Netherlands, the investigator contends, these women adapt quickly to the Dutch pattern of contraceptive use, which is dominated by the pill and by sterilization.

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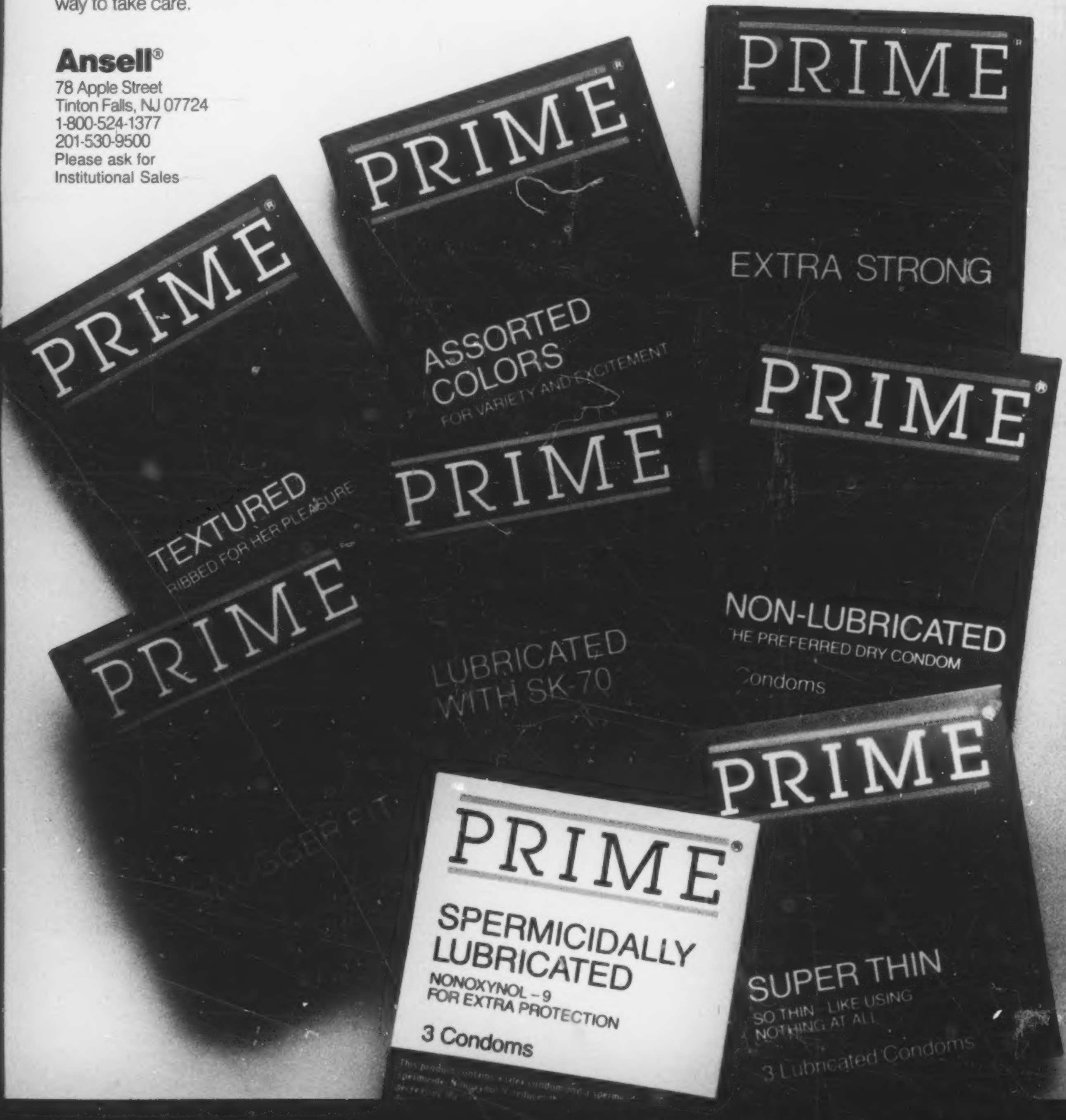

Books in Review

The Wheel of Fortune

Poor Women, Powerful Men
by Martha C. Ward, Westview Press, Boulder, Colorado, $33.00 (cloth), $14.95 (paper), 189 pp.

Reviewed by Richard Lincoln

This is a story in the tragic hero mold. As told by cultural anthropologist Martha C. Ward, it began on September 10, 1965, when Louisiana's first family planning clinic was opened in poor, rural, fundamentalist Lincoln Parish. By the early 1970s, that tiny clinic had expanded into a program encompassing a network of family planning and maternal and community health clinics throughout the state, as well as in several Latin American countries. During its nine years of operation, the program had spent some $62 million, and served hundreds of thousands of poor women—most of whom obtained their first taste of any kind of preventive health services there. But on May 14, 1974, the bubble burst when the Family Health Foundation, which had been operating this vast clinic network, was thrown into receivership. For the program's charismatic president, Joseph Diehl Beasley, the wheel of fortune came full circle, in December 1977, when he began serving a two-year sentence in a federal prison in Florida for misusing federal government funds in the operation of the program.

In *Poor Women, Powerful Men,* Ward details the rags-to-riches-to-rags-again tale of this program, which once stood as an exemplar for, and which had such an extraordinary influence on, the development of family planning programs everywhere.

In 1964, before the program started, Ward notes, "on all classic scales—illegitimacy, high infant and maternal mortality, welfare dependency, poverty, family pathologies and the blighted lives of children—[Louisiana] ranked at or near the bottom" [p. 2]. It was a felony even to disseminate information about contraceptives. Abortion was illegal. Few doctors would perform vasectomies or tubal sterilizations. One-third of the state's population was Roman Catholic. Much of the rest of the population belonged to hard-shell fundamentalist denominations with conservative views on sexual matters. Health care for the poor—what there was of it—was delivered almost entirely by the state-operated Charity Hospital system and by the local state health departments. Virtually all indigent women delivered their babies in the Charity hospitals, often without getting any prenatal care.

Into this "semitropical and somewhat underdeveloped land" [p. 19] arrived Beasley, a pediatrician from a small Georgia town who was determined to use the knowledge he had gained about health problems in developing countries, while studying at the London School of Hygiene and Tropical Medicine, to revolutionize health services for poor people in Louisiana. His base was the Tulane University School of Public Health and Tropical Medicine, where he held, among other titles, the chair of Family Health and Population Dynamics; the program itself was eventually run by a separate nonprofit corporation headed by Beasley.

Lincoln and Orleans Parish

A grant from the U.S. Children's Bureau permitted Beasley to set up the state's first family planning program in Lincoln Parish as "a research laboratory for population and family planning programs in a rural setting " [p. 26]. This was only the first of scores of grants obtained by Beasley from the federal, state and local governments; some $53 million in federal funds alone eventually went to the program's operations.

Before starting services anywhere in Louisiana, Beasley and his group had to defuse actual and potential opposition. The powerful Catholic hierarchy agreed not to oppose the program provided Beasley promise that there would be no use of mass media or advertising and no provision or referral for abortion; that information about the Church-approved method of periodic abstinence be offered at all family planning clinics; and that commencement of services in southern Louisiana be delayed until the Church reviewed all procedures. In addition, eligibility for services was restricted to women who were married or who had had a child. (In fact, the program first served only indigent mothers who had just given birth.)

The governor of the state approved the program provided that no state funds be used to set it up. He imposed this condition in order to avoid possible controversy in the legislature. It was necessary, however, to get rid of the state's anticontraception law before services could be initiated. This was accomplished, again without having to go through a legislative battle, when the governor convinced the state's attorney general to "reinterpret" the restrictive law just a month before the Lincoln Parish clinic was to open.

Despite the many compromises required to get official and community leadership support for the program, Beasley and his colleagues insisted that the staff and patients be racially integrated, that services be kept confidential and that patients be interviewed and treated in complete privacy. Rather than just opening a clinic and waiting for patients to come in, the program systematically targeted the women who were in need of family planning help. Prohibited from advertising the clinic's services or from using the media, Beasley pioneered in developing a system of neighborhood outreach, using workers who went from door to door to visit potential patients.

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The same workers followed up women who did not keep their clinic appointments. Beasley's Tulane University researchers published data showing that in the first three years of the clinic's operation, the overall birthrate of poor women in Lincoln Parish declined by 44 percent and the rate of unmarried childbearing declined by 55 percent, compared with a 25 percent drop in both rates in control areas.

Buoyed by success, the program was ready to expand to New Orleans—the jewel in the state's crown. The potential opposition was effectively co-opted: The Catholic Church agreed to support and monitor natural family planning and basic health programs; white and black ministerial groups agreed to advise on moral and religious questions concerning sex education and premarital pregnancy; the Board of Education agreed to drop its policy of expelling pregnant teenagers from school, and to open a special high school where they could complete their education; the medical societies became consultants on the program's medical policies; and the pharmacists were persuaded that the distribution of free contraceptives to indigent women would not interfere with their profits and lent their support to the program. The first New Orleans clinic was opened in June of 1967.

Within 18 months, the program, instituted in several clinics around the city, had contacted all women identified as being in need of services. However, 96 percent of actual patients were black, and white participation in the New Orleans clinics never rose to more than 15 percent. It was necessary to work closely with black community and leadership groups to defuse the charges of genocide that began to surface in the late 1960s and the early 1970s in relation to family planning programs. Although adolescent pregnancy was a serious problem in Louisiana, as elsewhere in the country, teenagers who were not married and childless could not obtain contraceptive services (though they could get counseling and physical examinations). Not until 1972 did the program begin to provide services to unmarried, never-pregnant adolescents; even then, the attempt to include adolescents was "only a token," according to Ward.

The Statewide Program

In the autumn of 1968, the U.S. Department of Health, Education and Welfare (DHEW—now the Department of Health and Human Services) gave $1.75 million to the program to expand into all the parishes of Louisiana. "By the end of 1970," Ward states, the program's "detailed organization and its idealism had reached thousands of patients, hundreds of health care professionals, significant parts of the federal bureaucracy, private foundations, and the scientific-intellectual community" [p. 64]. Soon birth control became only one of many health services that were offered in these clinics. By 1970, there were 148 clinics in place throughout the state; aircraft were leased to reach inaccessible rural parishes quickly; a decision was made to build a fleet of mobile clinics; and administrators from other states and from 47 other countries were being trained. In 1972, the program expanded further with a U.S. Agency for International Development grant to export the Louisiana model to Colombia, Mexico and Venezuela.

Growth, Growth, Growth

By March 1972, the Louisiana Family Planning Program had changed its name to the Family Health Foundation to reflect its expansion into new areas of health care. Community medicine was the buzzword, encompassing "day care, adult education, nutrition, transportation, housing, manpower development, care for the aged, environmental sanitation, legal support, drug rehabilitation, ecological coordination and the provision of a positive framework for industrial development in the areas of the [program's] Neighborhood Health Centers. The stated purpose of such broad involvement, according to Ward, was to demonstrate the utility of such a foundation "as the mechanism through which a major city can expand and improve its health and human development" [p. 75]. A tall order—and symptomatic of the hubris that split the consensus supporting the program and that helped pave the way for its downfall.

A corps of management experts—lawyers and MBAs—were hired to manage the far-flung and still-growing program and to administer the scores of grants that were coming in. A room specially designed for processing grants was set up in the main New Orleans office. The new power elite, Ward notes, were "bright and glib and loved the complexities of grantsmanship, contract manipulation, dealing with government officials . . . . They also relished the accoutrements of power: salary raises, airplanes and limousine service, and dinners at New Orleans' finest restaurants" [p. 77]. The foundation, she said, "was riding high on the social liberalism of the war on poverty" [p. 85].

Relations with the state medical society became increasingly strained as the foundation got involved in delivering more and more medical services that went beyond birth control. The large grants going into Beasley's private foundation began to draw the envy of state officials, who felt that they should have gotten the money. The medical society withdrew its support in April 1972, and in December, charged openly that the foundation had taken money from two different federal agencies to support the same services. In April 1973, a grand jury was convened to investigate the medical society's and other charges of misuse of federal funds.

In October of that year, the DHEW issued a report charging that the foundation had spent money contrary to the goals and regulations of that federal agency. Charges ranged from the alleged illegal purchase of capital equipment (the mobile health clinics) with funds allocated for operations, to the laundering of private donations to be used as matching funds for federal grants. Between March 20 and May 8, 1974, a grand jury returned several indictments against Beasley and his fellow foundation officers. A week later, a U.S. district court judge placed the foundation in receivership; its assets were seized, and its seven top officials were ousted. In September, the family planning program was transferred to the state health department. The evening clinics were closed. Outreach and follow-up were virtually abandoned. Clinics were consolidated. Eligibility rules were tightened, and few women other than welfare clients were served. Only the services narrowly defined as providing contraceptives continued. The number of clinic appointments declined drastically.

Beasley was tried first in early 1975 on a charge of conspiracy to defraud the federal government through the misuse of federal funds. He tried to turn the proceeding into "a trial on the constitutional issues of health care delivery services. But the legal questions did not permit such an approach" [p. 126]. That trial ended in a hung jury. Two months later, he was tried again, convicted and sentenced to two years in federal prison. In December 1977, after exhausting all appeals, Beasley began serving his term. He spent 18 months in the federal prison at the Eglin Air Force Base in Florida, with the remainder spent under close probation. While he was in prison, the state of Louisiana took away his license to practice medicine; but later it was restored. Beasley today is a Fellow in Medicine and Science at Bard College and is head of the Department of Medicine and Nutrition at Brunswick Hospital in Amityville, New York.

What went wrong? According to Ward,

"birth control services had a solid foundation, but the expansion into community medicine and international population control [was] in pursuit of a dream built on sand" [p. 132]. Politicians feared that the program was building a powerful political constituency. Genocide accusations "frightened administrators into desperate acts of bribery" [p. 133]. Vague federal guidelines and lax governmental supervision encouraged loose accounting practices by the foundation.

To what extent were Beasley's own character flaws responsible? No doubt, Beasley was "a poor judge of character when hiring associates" [p.136], to whom he left more and more of the decision-making about the program's operations. But, according to Ward, "many poor people in New Orleans remember him as a folk hero in the Robin Hood mold: They believe he took money from the rich in a good cause" [p. 137].

Whatever the legal culpability of Beasley and his colleagues, Ward notes, "even the most vociferous critics of [the program] do not question its fundamental claims of achievement. The program was racially integrated.*Dignity and respect for women were more than a motto. Not one single charge of patient maltreatment was leveled at the program. . . . There was no coercion. The medical services offered . . . still serve as a model in the United States. Many key administrators in family planning or maternal-child health care systems around the world were trained in Louisiana." What is more, "the strategy of identifying high-risk women in their childbearing years and concentrating medical resources on them was an important case of primary-care epidemiology" [p. 136].

Despite the progress made during the program's heyday, the infant mortality rate in Louisiana is still higher than that of any state except Mississippi. Babies are born with low birth weight at a rate twice the national average; and half of all new mothers have made fewer than three prenatal visits. "Nearly 25 years ago, statistics like these were the battle cry for family planning," Ward states plaintively. But no more.

The book ends with a tableau: The time is 1983. New Orleans' first black mayor has called a meeting of several hundred community leaders, politicians, health professionals and educators to proclaim the Year of the Healthy Birth. Attention is called to a project entitled Improved Pregnancy Outcome, which, like Beasley's Lincoln Parish family planning program, was begun as a demonstration project in northern Louisiana to gain experience for a more extensive program in New Orleans. But unlike the Lincoln Parish project, Ward points out, Improved Pregnancy Outcome never went beyond the pilot stage; the demonstration project was not even renewed, much less expanded.

Martha Ward's chronicle and analysis of this extraordinary program is thoughtful and sympathetic, but objective. It is a cautionary tale of what was, what is and what might have been.

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*At one time, the foundation employed more than 1,000 people, of whom 52 percent were nonwhite and 81 percent were women.

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Statement of Ownership, Management and Circulation

Title of publication: *Family Planning Perspectives.* **Publication no.:** 080470. **Date of filing:** Sept. 28, 1987. **Frequency of issue:** Bimonthly. **No. of issues published annually:** Six. **Annual subscription price:** $26.00. **Complete mailing address of known office of publication:** 111 Fifth Avenue, New York, N.Y. 10003-1089. **Complete mailing address of the headquarters or general business offices of the publisher:** Same as above. **Publisher:** The Alan Guttmacher Institute, same address as above. **Editor:** Deirdre Wulf, same address as above. **Managing Editor:** Denise Kafka, same address as above. **Owner:** None. **Known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities:** None.

The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes have not changed during preceding 12 months.

Extent and nature of circulation	Avg. no. copies each issue during previous 12 mos.	Actual no. copies of single issue published nearest to filing date
Total no. copies	16,781	17,077
Paid and/or requested circulation		
Sales through dealers and carriers, street vendors and counter sales	0	0
Mail subscription (paid and/or requested)	9,994	9,828
Total paid and/or requested circulation	9,994	9,828
Free distribution by mail, carrier or other means; samples, complimentary and other free copies	6,176	6,187
Total distribution	16,170	16,015
Copies not distributed		
Office use, left over, unaccounted, spoiled after printing	661	1,062
Return from news agents	0	0
Total	16,781	17,077

I certify that the statements made by me above are correct and complete.

Denise Kafka, Editor

Perspectives is indexed in *Cumulative Index to Nursing and Allied Health Literature, Current Contents, Human Resources Abstracts, Index Medicus, PAIS Bulletin, POPLINE Previews, Population Index, Psychological Abstracts, Review of Population Reviews* (CICRED), *Sage Family Studies Abstracts, Social Sciences Citation Index* and *Statistical Reference Index*.

Acknowledgment to Reviewers

The editors wish to express their appreciation to the following reviewers for their assistance during 1987 in evaluating material for *Family Planning Perspectives:*

Sevgi O. Aral
Richard Lincoln
T. R. Balakrishnan
John O. G. Billy
Sarah S. Brown
Larry Bumpass
Josefina J. Card
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ORAL CONTRACEPTIVE (O.C.) AGENTS

Indications Prevention of pregnancy. *DOSE-RELATED RISK OF THROMBOEMBOLISM.* Because studies have shown a positive association between OC estrogen dose and risk of thromboembolism, it is prudent to minimize estrogen exposure. Prescribe an OC with the least amount of estrogen compatible with an acceptable pregnancy rate and patient acceptance. Start new users on OCs containing 0.05 mg or less of estrogen.

Contraindications 1. Known or suspected pregnancy (see Warning #5). 2. Thrombophlebitis or thromboembolic disorders. 3. Past history of deep vein thrombophlebitis or thromboembolic disorders. 4. Undiagnosed abnormal genital bleeding. 5. OCs should not be used by women who have or have had any of the following: a. cerebral vascular or coronary artery disease, including myocardial infarction. b. known or suspected carcinoma of the breast. c. known or suspected estrogen dependent neoplasia. d. benign or malignant liver tumor that developed during use of OCs or other estrogen containing products.

> **WARNINGS: Cigarette smoking increases the risk of serious cardiovascular side effects from OC use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use OCs should be strongly advised not to smoke.**
>
> The use of OCs is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, liver tumor, gall bladder disease, visual disturbances, fetal abnormalities, and hypertension. Practitioners prescribing OCs should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems.* An increased risk of thromboembolic and thrombotic disease associated with OC use is established. One study demonstrated an increased relative risk for fatal venous thromboembolism and several studies demonstrated it for non-fatal venous thromboembolism. They estimate that OC users are 4-11 times more likely than nonusers to develop these diseases without evident cause. One British study reported an excess death rate of 40% in OC users, most of which resulted from cardiovascular disease. Another British study showed a lower death rate in OC users than controls; an increase in cardiovascular deaths was seen but was not statistically significant. A U.S. prospective study failed to disclose increased mortality rates from cardiovascular disorders, but a subset analyzed as a retrospective, case-control study showed significant increases in venous thromboembolism. CEREBROVASCULAR DISORDERS. Two American studies demonstrated an increased relative risk for stroke not shown in prior British studies. In an American study of cerebrovascular disorders in women with and without predisposing causes, relative risk of hemorrhagic stroke was estimated as 2.0 times greater and thrombotic stroke as 4-9.5 times greater in users than nonusers. A British long-term follow-up study reported in 1976 a highly significant association between OC use and stroke. Another study had suggested an association in 1974, but the number of cases was too small to estimate the risk. Subarachnoid hemorrhage has been shown to be increased by OC use in British and American studies. Smoking alone increases incidence of these accidents; smoking and pill use appear to increase risk more than either alone.

MYOCARDIAL INFARCTION (MI). Increased relative risk of MI associated with OC use has been reported. One British study found that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia) the higher the risk of developing MI, regardless of OC use. OCs were an additional risk factor. In terms of relative risk, it has been estimated that nonsmoking OC users (smoking is considered a major predisposing condition to MI) are twice as likely to have a fatal MI as nonsmoking nonusers. OC users who are smokers have a 5-fold increased risk of fatal infarction compared to nonsmoking users, and a 10-12-fold increased risk compared to nonsmoking nonusers. The number of cigarettes smoked is important. In determining the importance of these relative risks, baseline rates for various age groups must be considered. (Estimates are based on British vital statistics which show acute MI death rates 2-3 times less than in the U.S. so U.S. death rates could be higher.) Importance of other predisposing conditions in determining relative and absolute risks has not been quantified; other synergistic actions may exist. RISK OF DOSE. Using data from several national adverse reaction reporting systems, British investigators concluded that risk of thromboembolism, including coronary thrombosis, is directly related to estrogen dose in OCs. OCs with 0.1 mg or more of estrogen were associated with a higher risk of thromboembolism than those containing 0.05-0.08 mg but quantity of estrogen may not be the sole factor. This was supported by a U.S. study. A British study found a positive association between dose of progestogen or estrogen and certain thromboembolic conditions. Swedish authorities noted decreased reporting of thromboembolic episodes when higher estrogen preparations were no longer prescribed. Careful epidemiological studies to determine degree of thromboembolic disease risk associated with progestogen-only OCs have not been done. Thromboembolic disease has been reported in women using these products, and they should not be considered free of excess risk. PERSISTENCE OF RISK. Two studies have suggested an increased risk may persist for 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI; another study suggested the persistence of risk for subarachnoid hemorrhage. ESTIMATE OF EXCESS MORTALITY FROM CIRCULATORY DISEASES. A large British prospective study estimated mortality rate per 100,000 women per year from circulatory system diseases for OC users and nonusers according to age, smoking habits, and duration of use. The overall annual excess death rate for OC users was estimated to be 20/100,000 (ages 15-34 – 5/100,000; ages 35-44 – 33/100,000; ages 45-49 – 140/100,000). Risk is concentrated in long-term users and in smokers, and may persist after OC discontinuation. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all occurred in women 35 or older. An update provided the following rates: ages 15-34 – 1/6700 for nonsmokers and 1/2000 for smokers; ages 45 and over – 1/2500 for nonsmokers and 1/500 for smokers. Risk appeared to increase with parity, but not with duration of use. Until more women under 35 with continuous use for 5 or more years are available, it is not possible to assess relative risk for this age group. Data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. Estimates include combined risk of the contraceptive method (e.g., thromboembolic and thrombotic disease for OCs) plus risk attributable to pregnancy or abortion if the method fails (which varies with the effectiveness of the contraceptive method). The study concluded that mortality associated with all contraceptive methods is below that of childbirth, except for OCs in women over 40 who smoke. (Rates given for pill only smokers for each age are for smokers as a class. For "heavy" smokers (more than 15 cigarettes a day), the rates would be about double; for "light" smokers (less than 15), about half.) The lowest mortality is with the condom or diaphragm backed up by early abortion. The study also concluded that OC users who smoke, especially over 30, have greater mortality risk than OC users who do not smoke.

Risk of thromboembolic and thrombotic disease associated with OCs increases with age after 30 and for MI is further increased by hypertension, hyperlipidemias, obesity, diabetes, or history of preeclamptic toxemia, and especially by smoking. The following chart gives a gross estimate of risk of death from circulatory disorders associated with OC use.

SMOKING HABITS AND OTHER PREDISPOSING CONDITIONS – RISK ASSOCIATED WITH USE OF OCs

Age	Below 30	30-39	40 +
Heavy smokers	C	B	A
Light smokers	D	C	B
Nonsmokers (no predisposing conditions)	D	C,D	C
Nonsmokers (other predisposing conditions)	C	C,B	B,A

A – Use associated with very high risk
B – Use associated with high risk
C – Use associated with moderate risk
D – Use associated with low risk

Physician and patient should be alert to earliest manifestations of thromboembolic and thrombotic disorders (e.g., thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). Should any of these occur or be suspected, discontinue OC immediately. A 4-6 fold increased risk of post-surgery thromboembolic complications has been reported in OC users. If feasible, discontinue OCs at least 4 weeks before surgery associated with increased risk of thromboembolism or prolonged immobilization. Before resuming OC after major surgery or bedrest, balance risks of post-surgery thromboembolic complications with contraceptive needs. Data suggest varicose veins substantially increase risk of superficial venous thrombosis of the leg, the risk depending on the severity of the varicosities. 2. *Ocular Lesions.* Neuro-ocular lesions such as optic neuritis or retinal thrombosis have been associated with OC use. Discontinue OC if there is unexplained, sudden, or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions; and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma.* Long-term continuous administration of natural or synthetic estrogen in certain animals increases certain tumors, benign or malignant, such as breast, cervix, vagina, uterus, ovary, pituitary and liver. Certain synthetic progestogens, none currently in OCs, increase the incidence of mammary nodules, benign and malignant, in dogs. Several retrospective case-control studies reported an increased relative risk (3.1-13.9 times) associating endometrial carcinoma with the prolonged use of estrogens in postmenopausal women. One publication reported the first 30 cases submitted to the registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the adenocarcinomas found in women without predisposing risk factors for adenocarcinoma of the endometrium (e.g., irregular bleeding when OCs were first given, polycystic ovaries), nearly all occurred in women who had used sequential OCs, which are no longer marketed. No statistical association has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs, although individual cases have been reported. Studies have shown no increased risk of breast cancer to OC or estrogen users. One study found no overall increased risk of breast cancer in OC users but a greater risk was suggested for OC users with documented benign breast disease and for long-term (2-4 years) users. Another study found a history of breast cancer among grandmothers or aunts was significantly more frequent among breast cancer patients who had used an OC continuously for one or more years than among nonusers with breast cancer. One other study indicated an increasing risk of breast cancer in women taking menopausal estrogens, which increased with duration of follow-up. One author suggests that extended (over 6 years) OC use prior to first full term pregnancy was associated with a significant relative risk of breast cancer. A reduced occurrence of benign breast tumors in OC users has been well documented. One study reported malignant melanoma more frequently in OC users than controls and suggests an increased incidence of urinary tract and thyroid cancers. A prospective study of women with cervical dysplasia found an increase in severity and conversion to cancer *in situ* in OC users compared to nonusers. This became statistically significant after 3-4 years of use. Nonreversal of dysplasia within the first 6 months of pill use was suggested to predict progression after prolonged exposure. One study disclosed an increased risk of cancer of the cervix (largely carcinoma *in situ*) in OC users under 40, particularly those who had used OCs over 4 years. There have been other reports of microglandular hyperplasia of the cervix in OC users. One study reported an association between OC use and endocervical adenocarcinoma. In summary, there is no confirmed evidence from human studies of increased risk of cancer associated with OCs. Close clinical surveillance of all OC users is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, take appropriate diagnostic measures to rule out malignancy. Monitor OC users with a strong family history of breast cancer or who have breast nodules, fibrocystic disease or abnormal mammograms with particular care. 4. *Liver Tumors.* Sudden severe abdominal pain or shock may be due to rupture and hemorrhage of a liver tumor. There have been reports associating benign or malignant liver tumors with short-term and long-term OC use. One study reported use of OCs with high hormonal potency and age over 30 may further increase risk of hepatocellular adenoma. Two studies relate risk with duration of use, risk being much greater after 4 or more years of use. Long-term OC users have an estimated annual incidence of hepatocellular adenoma of 3-4/100,000. Although an uncommon lesion, it should be considered in women presenting with an "acute abdomen." The tumor may cause serious or fatal hemorrhage. Patients with liver tumors have demonstrated variable clinical features which may make preoperative diagnosis difficult. Some cases presented because of right upper quadrant masses, while most had signs and symptoms of acute intraperitoneal hemorrhage. Routine radiological and laboratory studies may not be helpful. Liver scans may show a focal defect. Hepatic arteriography may be useful in diagnosing primary liver neoplasm. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring.* Use of female sex hormones – estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. Females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated to be of the order of 1/1000 exposures or less. Although there is no evidence that OCs further enhance the risk of developing this type of malignancy, such OC users should be monitored with particular care. A high percentage of women exposed to diethylstilbestrol (30-90%) have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are a precursor of vaginal malignancy. Male children so exposed may develop urogenital tract abnormalities. Although similar data are not available on other estrogens, it cannot be presumed that they would not induce similar changes. Increased risk of congenital anomalies, including heart and limb defects, has been reported following use of sex hormones, including OCs, in pregnancy. One case-control study estimated a 4.7-fold increased relative risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some exposures involved only a few days of treatment. Data suggest risk of limb-reduction defects in exposed fetuses is somewhat less than 1/1000 live births. In a large prospective study, cardiovascular defects in children born to women who received female hormones, including OCs, during early pregnancy occurred at 18.2/1000 births, compared to 7.8/1000 for children not so exposed *in utero*. These results are statistically significant. A Welsh study found a statistically significant excess of neural tube defects among offspring of prior OC users (within 3 months) than among controls. The incidence of twin births may be increased for women who conceive shortly after discontinuing OC use. In the past, female sex hormones were used during pregnancy in an attempt to treat threatened or habitual abortion. There is evidence that estrogens are ineffective, and there is no evidence from well controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. If the patient has not adhered to the prescribed schedule, consider possible pregnancy at the first missed period (or 45 days from the last menstrual period if progestogen-only OCs are used) and discontinue OC use until pregnancy has been ruled out. For any patient who has missed two consecutive periods, rule out pregnancy before continuing the OC. If pregnancy is confirmed, tell the patient about potential risks to the fetus and discuss advisability of continuing the pregnancy. Women who discontinue OCs to become pregnant should use an alternate form of contraception for a period of time before attempting to conceive. A 3-month period is supported by a study suggesting increased frequency of neural tube defects in women impregnated during the first 3 months after cessation of OC use. Do not use progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding as a pregnancy test. 6. *Gall Bladder Disease.* Studies report increased risk of gall bladder disease in OC or estrogen users. In one study, an increased risk appeared after 2 years of use and doubled after 4-5 years. In another study, an increased risk was apparent between 6 and 12 months. 7. *Carbohydrate and Lipid Metabolic Effects.* Because a decrease in glucose tolerance has been observed in a significant percentage of patients on OCs, prediabetic and diabetic OC users should be carefully observed. An increase in triglycerides and total phospholipids has been observed in OC users but its clinical significance is unknown. 8. *Elevated Blood Pressure.* An increase in blood pressure has been reported with OC use. Hypertension may occur within a few months of beginning OCs. In the first year of use, incidence of hypertension may be no higher in OC users than in nonusers. Incidence in users increases with exposure and in the fifth year of use is 2.5-3 times that in the first year. Age is strongly correlated with hypertension in OC users. Women with a history of elevated blood pressure (hypertension), preexisting renal disease, history of toxemia or elevated blood pressure during pregnancy, familial tendency to hypertension or its consequences," or history of excessive weight gain or fluid retention during the menstrual cycle may be more likely to develop elevated blood pressure when given OCs and should be monitored closely. Even though elevated blood pressure may remain within the "normal" range, closely watch elevations, particularly for women with other risk factors for cardiovascular disease or stroke. High blood pressure may or may not persist after OC discontinuation. 9. *Headache.* Discontinue OC and evaluate the cause of onset or exacerbation of migraine or development of a new pattern of headache which is recurrent, persistent, or severe. 10. *Bleeding Irregularities.* Breakthrough bleeding, spotting, and missed menses often make users discontinue OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, consider nonfunctional causes. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, use adequate diagnostic measures to rule out pregnancy or malignancy. If pathology has been excluded, time or another formulation may solve the problem. While potentially useful in minimizing menstrual irregularity, change to an OC with a higher estrogen content only if necessary since this may increase the risk of thromboembolic disease. Women with a history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may tend to remain anovulatory or to become amenorrheic after OC discontinuation. Women with these preexisting problems should be advised of this and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may occur in women without previous irregularities. A higher incidence of galactorrhea and of pituitary tumors (e.g., adenomas) has been associated with amenorrhea in former users compared with nonusers. One study reported a 16-fold increased incidence of pituitary prolactin-secreting tumors among patients with postpill amenorrhea when galactorrhea was present. 11. *Infertility.* There is evidence of impairment of fertility in women discontinuing OCs in comparison with other contraceptive methods, which appears to be independent of duration of use. While impairment diminishes with time, there is an appreciable difference in the results in nulliparous women for OC and other groups 30 months after discontinuation of birth control. For parous women the difference is not apparent 30 months after cessation of contraception. 12. *Ectopic Pregnancy.* Ectopic as well as intrauterine pregnancy may occur in OC failure. In progestogen-only OC failures, the ratio of ectopic to intrauterine pregnancies is higher than in nonusers, since the drugs are more effective in preventing intrauterine than ectopic pregnancies. 13. *Breast Feeding.* OCs in the postpartum period may interfere with lactation by decreasing quantity and quality of breast milk. A small fraction of OC hormonal agents has been identified in milk of mothers receiving OCs. Effects, if any, on the breast-fed child have not been determined. If feasible, defer OC use until the infant has been weaned.

Precautions *GENERAL.* 1. Take a complete medical and family history before starting OCs. Pretreatment and periodic physical exams should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant lab tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical. 2. Under the influence of estrogen-progestogen preparations, preexisting uterine leiomyomata may enlarge. 3. Observe patients with a history of psychic depression and discontinue OCs if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the OC and use an alternate method of contraception to determine whether the symptom is drug related. 4. OCs may cause some fluid retention. Prescribe with caution, and only with careful monitoring, in patients with conditions that might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma or cardiac, hepatic or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence while using OCs. Discontinue OC if jaundice develops. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution in such patients. 7. OC users may have disturbances in normal tryptophan metabolism that may result in a relative pyridoxine deficiency. The clinical significance is unknown. 8. Serum folate levels may be depressed by OC use. Since the pregnant woman is predisposed to folate deficiency and incidence of folate deficiency increases with increasing gestation, if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and related complications. 9. Advise the pathologist of OC use when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs. For example: a. Increased sulfobromophthalein retention. b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability. c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered. d. Decreased pregnanediol excretion. e. Reduced response to metyrapone test. f. Increased phospholipids and triglycerides. g. Temporarily decreased glucose tolerance. 11. Contact lens wearers who develop visual changes or changes in lens tolerance should be assessed by an ophthalmologist and temporary or permanent cessation of wear considered. DRUG INTERACTIONS. OCs may be less effective and there may be increased breakthrough bleeding from interactions with rifampin, isoniazid, ampicillin, tetracycline, neomycin, penicillin V, chloramphenicol, sulfonamides, nitrofurantoin, barbiturates, phenytoin, primidone, analgesics, tranquilizers, antimigraine preparations, antihistamines, and griseofulvin. OCs may alter effectiveness of such other drugs as oral anticoagulants, anticonvulsants, tricyclic antidepressants, antihypertensive agents (e.g., guanethidine), vitamins, hypoglycemic agents, tranquilizers, hypnotic preparations, theophylline, and beta blockers. *CARCINOGENESIS.* See Warnings. *PREGNANCY.* Pregnancy category X. See Contraindications and Warnings. *NURSING MOTHERS.* See Warnings.

Adverse Reactions An increased risk of the following serious adverse reactions has been associated with OC use (see Warnings): thrombophlebitis, thrombosis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, mesenteric thrombosis, liver tumors, cerebral hemorrhage, hypertension, gall bladder disease, congenital anomalies, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis, Raynaud's disease, arterial thromboembolism. The following adverse reactions have been reported in OC users and are believed to be drug related: bleeding irregularities (breakthrough bleeding, spotting, missed menses during treatment, amenorrhea after treatment), gastrointestinal symptoms (nausea, vomiting, bloating, abdominal cramps, colitis), dysmenorrhea, infertility after discontinuance of treatment, edema, chloasma or melasma which may persist after drug is discontinued, breast changes (tenderness, enlargement, and secretion), intolerance to contact lenses, changes in corneal curvature (steepening), change in weight (increase or decrease), change in cervical erosion and cervical secretion, possible diminution of lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, prolactin-secreting pituitary tumors, chilblains. The following adverse reactions have been reported in OC users and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of hair, erythema multiforme, erythema nodosum, hemorrhagic eruptions, vaginitis, porphyria, impaired renal function, malignant nephrosclerosis (hemolytic uremic syndrome), malignant hypertension, acute renal failure. **Information for the Patient** (See Patient Package Insert)

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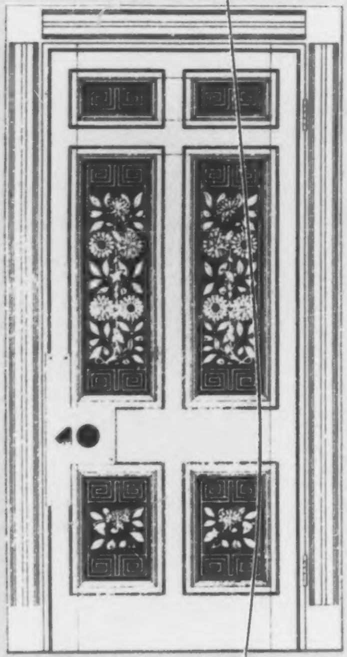
BREVICON TABLETS
(Norethindrone and Ethinyl Estradiol)

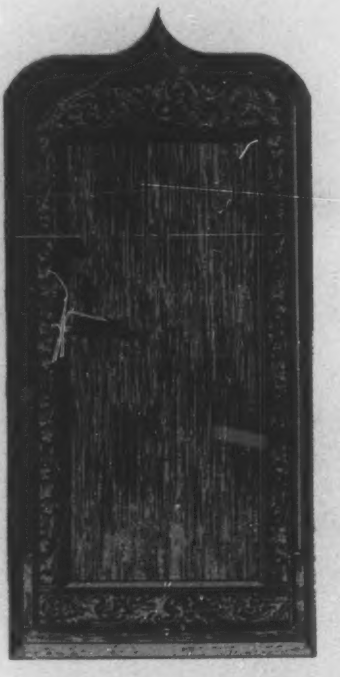
4/8/80 A 5160-1

Family Planning Perspectives

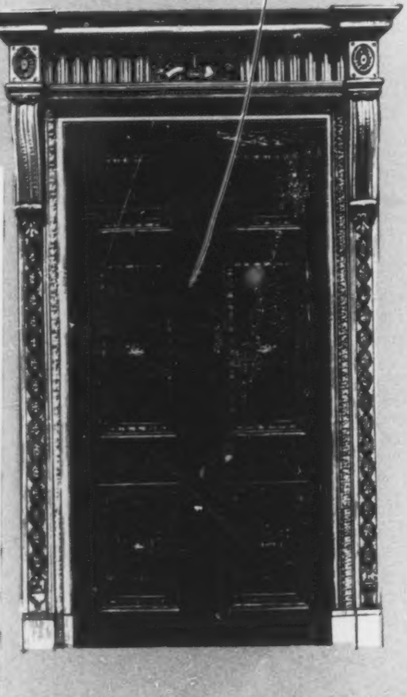
Volume 20, Number 1, January/February 1988

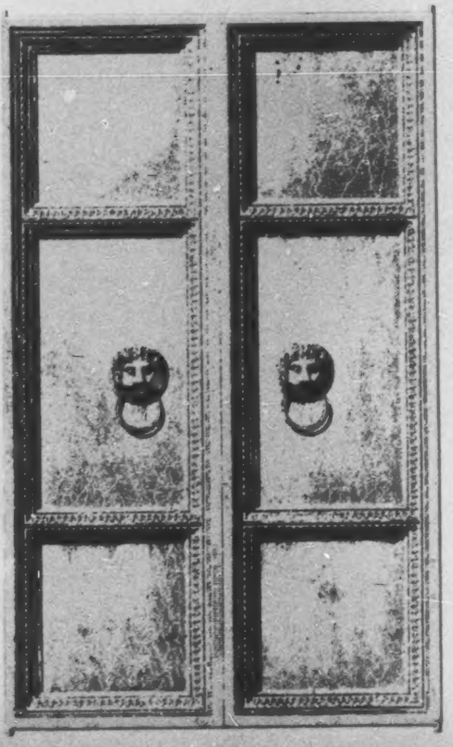
Teenagers Willing to Consider Single Parenthood
First Family Planning Visits by Young Women
Teenagers Who Place Their Children for Adoption





PATHS TO REDUCED UNINTENDED PREGNANCY AND ABORTION





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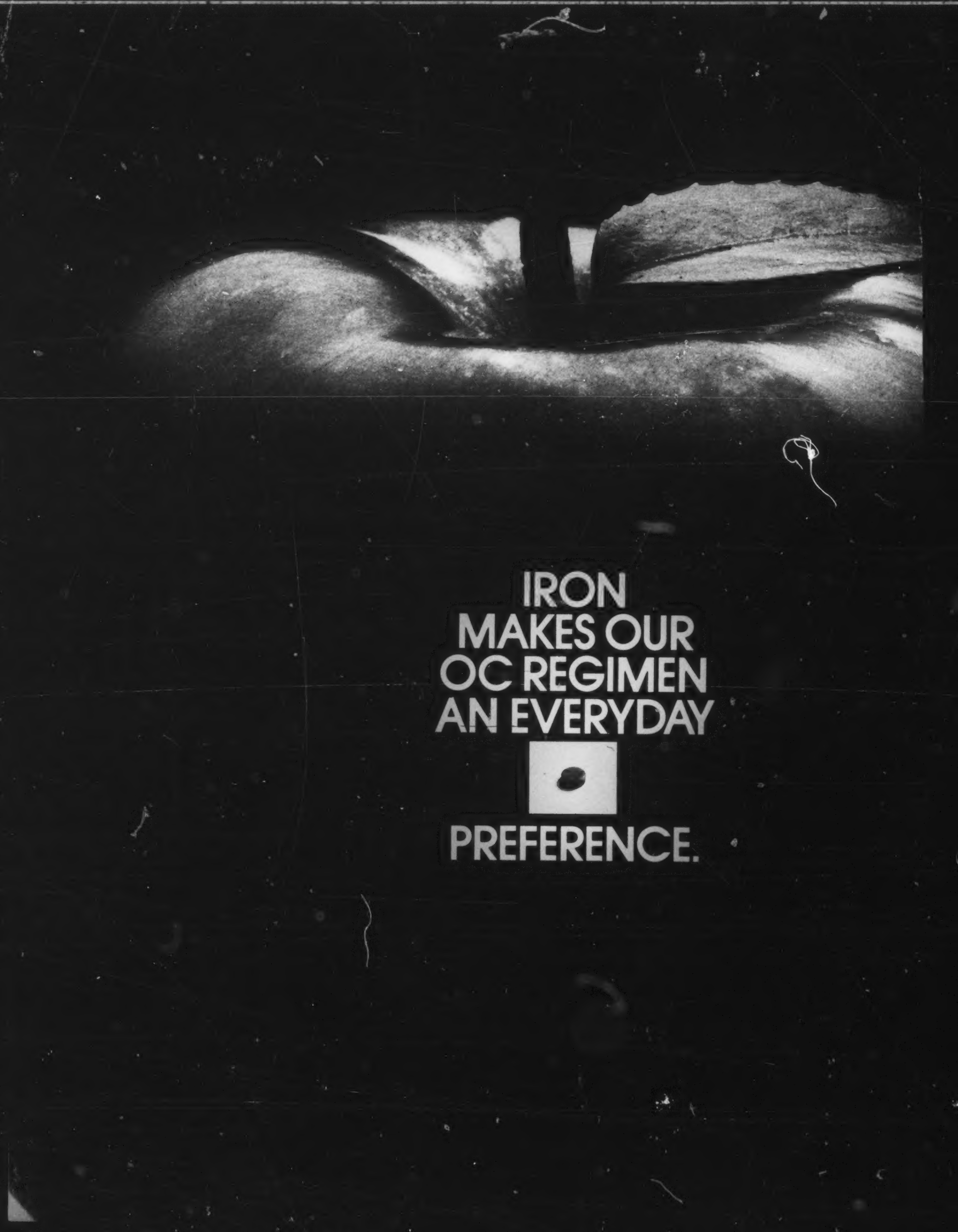
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Although not intended for therapeutic purposes, the last seven tablets in the LOESTRIN Fe 28-day regimen, each of which contains 75 mg iron, are preferred by patients.*

LOESTRIN® Fe

(1.5 mg norethindrone acetate and 30 mcg ethinyl estradiol tablets, USP)

THE PATIENT-PREFERRED REGIMEN.

PARKE-DAVIS

Please see next page for brief summary of prescribing information.

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*Data on file, Medical Affairs Dept, Parke-Davis

PD-21-JA-4827-P-1(1-88)

LOESTRIN® Fe

(1.5 mg norethindrone acetate and 30 mcg ethinyl estradiol tablets, USP)

Before prescribing, please see full prescribing information. A Brief Summary follows:
INDICATIONS AND USAGE: Loestrin is indicated for the prevention of pregnancy in women who elect to use OCs as a method of contraception. **Dose-Related Risk of Thromboembolism from Oral Contraceptives:** Two studies have shown a positive association between the dose of estrogens in OCs and the risk of thromboembolism. For this reason, it is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The OC product prescribed for any given patient should be that product containing the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance. It is recommended that new acceptors of OCs be started on preparations containing 0.05 mg or less of estrogen. **CONTRAINDICATIONS:** OCs should not be used in women with any of the following conditions: 1. Thrombophlebitis or thromboembolic disorders. 2. A past history of deep vein thrombophlebitis or thromboembolic disorders. 3. Cerebral vascular or coronary artery disease. 4. Known or suspected carcinoma of the breast. 5. Known or suspected estrogen-dependent neoplasia. 6. Undiagnosed abnormal genital bleeding. 7. Known or suspected pregnancy (see Warning No. 5). 8. Benign or malignant liver tumor that developed during the use of OCs or other estrogen-containing products.

WARNINGS

> **Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.**
>
> The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems.* An increased risk of thromboembolic and thrombotic disease associated with the use of OCs is well established. Three principal studies in Great Britain and three in the US have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic. These studies estimate that users of OCs are 4 to 11 times more likely than nonusers to develop these diseases without evident cause. **Cerebrovascular Disorders:** In a collaborative American study of cerebrovascular disorders in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than in nonusers and the risk of thrombotic stroke was 4 to 9.5 times greater in users than in nonusers. **Myocardial Infarction:** An increased risk of MI associated with the use of OCs has been reported, confirming a previously suspected association. These studies, conducted in the UK, found, as expected, that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia), the higher the risk of developing MI, regardless of whether the patient was an OC user or not. OCs, however, were found to be a clear additional risk factor. In terms of relative risk, it is estimated that OC users who do not smoke (smoking is considered a major predisposing condition to MI) are about twice as likely to have a fatal MI as nonusers who do not smoke. OC users who are also smokers have about a 5 fold increased risk of fatal infarction compared with users who do not smoke, but about a 10- to 12 fold increased risk compared with nonusers who do not smoke. Furthermore, the amount of smoking is an important factor. In determining the importance of these relative risks, however, the baseline rates for various age groups must be given serious consideration. The importance of other predisposing conditions mentioned above in determining relative and absolute risks has not yet been quantified; it is quite likely that the same synergistic action exists, perhaps to a lesser extent. **Risk of Dose:** In an analysis of data derived from several national adverse reaction reporting systems, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in OCs. Preparations containing 100 mcg or more of estrogen were associated with a higher risk of thromboembolism than those containing 50 to 80 mcg of estrogen. Their analysis did suggest, however, that the quantity of estrogen may not be the sole factor involved. This finding has been confirmed in the US. **Persistence of Risk:** In confirmation of earlier reports, two studies have suggested that an increased risk may persist for as long as 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI. In addition, one prospective study suggested the persistence of risk for subarachnoid hemorrhage. **Estimate of Excess Mortality from Circulatory Diseases:** A large prospective study carried out in the UK estimated the mortality rate per 100,000 women per year from diseases of the circulatory system for users and nonusers of OCs according to age, smoking habits, and duration of use. The overall excess death rate annually from circulatory diseases for OC users was estimated to be 20 per 100,000 (ages 15 to 34 – 5/100,000; ages 35 to 44 – 33/100,000; ages 45 to 49 – 140/100,000), the risk being concentrated in older women, in those with a long duration of use, and in cigarette smokers. It was not possible, however, to examine the interrelationships of age, smoking, and duration of use, nor to compare the effects of continuous versus intermittent use. Although the study showed a 10 fold increase in death due to circulatory diseases in users for 5 or more years, all of these deaths occurred in women 35 or older. Until larger numbers of women under 35 with continuous use for 5 or more years are available, it is not possible to assess the magnitude of the relative risk for this younger age group. The available data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. The estimates of risk of death for each method include the combined risk of the contraceptive method (eg, thromboembolic and thrombotic disease in the case of OCs) plus the risk attributable to pregnancy or abortion in the event of method failure. This latter risk varies with the effectiveness of the contraceptive method. The study concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of OCs in women over 40 who smoke. The lowest mortality is associated with the condom or diaphragm backed up by early abortion. The risk of thromboembolic and thrombotic disease associated with OCs increases with age after approximately age 30 and, for MI, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preeclamptic toxemia and especially by cigarette smoking. The physician and the patient should be alert to the earliest manifestations of thromboembolic and thrombotic disorders (eg, thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). If any of these occurs or is suspected, the drug should be discontinued immediately. A 4- to 6 fold increased risk of postsurgical thromboembolic complications has been reported in OC users. If feasible, OCs should be discontinued at least 4 weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization. 2. *Ocular Lesions.* There have been reports of neuro-ocular lesions, such as optic neuritis or retinal thrombosis, associated with the use of OCs. Discontinue OC medication if there is unexplained, sudden or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma.* Long-term continuous administration of either natural or synthetic estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver. Certain synthetic progestogens, none currently contained in OCs, have been noted to increase the incidence of mammary nodules, benign and malignant, in dogs. In humans, three case control studies have reported an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women. One publication reported on the first 21 cases submitted by physicians to a registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the cases found in women without predisposing risk factors for adenocarcinoma of the endometrium (eg, irregular bleeding at the time OCs were first given, polycystic ovaries), nearly all occurred in women who had used a sequential OC. These products are no longer marketed. No evidence has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen only OCs. Several studies have found no increase in breast cancer in women taking OCs or estrogens. One study, however, while also noting no overall increased risk of breast cancer in women treated with OCs, found an excess risk in the subgroups of OC users with documented benign breast disease. A reduced occurrence of benign breast tumors in users of OCs has been well documented. In summary, there is at present no confirmed evidence from human studies of an increased risk of cancer associated with OCs. Close clinical surveillance of all women taking OCs is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms should be monitored with particular care if they elect to use OCs. 4. *Hepatic Tumors.* Benign hepatic adenomas have been found to be associated with the use of OCs. One study showed that OC formulations with high hormonal potency were associated with a higher risk than lower potency formulations. Although benign, hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage. This has been reported in short term as well as long-term users of OCs. Two studies relate risk with duration of use of the contraceptive, the risk being much greater after 4 or more years of OC use. While hepatic adenoma is a rare lesion, it should be considered in women presenting with abdominal pain and tenderness, abdominal mass or shock. A few cases of hepatocellular carcinoma have been reported in women taking OCs. The relationship of these drugs to this type of malignancy is not known at this time. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring.* The use of female sex hormones – both estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. It has been shown that females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been demonstrated to be of the order of 1 in 1,000 exposures or less. Although there is no evidence at the present time that OCs further enhance the risk of developing this type of malignancy, such patients should be monitored with particular care if they elect to use OCs. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether this condition is a precursor of vaginal malignancy. Male children so exposed may develop abnormalities of the urogenital tract. Although similar data are not available with the use of other estrogens, it cannot be presumed that they would not induce similar changes. An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of sex hormones, including OCs, in pregnancy. One case control study has estimated a 4.7 fold increase in risk of limb reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb reduction defects in exposed fetuses is somewhat less than 1 in 1,000 live births. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. It is recommended that for any patient who has missed two consecutive periods, pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule, the possibility of pregnancy should be considered at the time of the first missed period, and further use of OCs should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuation of the pregnancy should be discussed in the light of these risks. It is also recommended that women who discontinue OCs with the intent of becoming pregnant use an alternate form of contraception for a period of time before attempting to conceive. Many clinicians recommend 3 months although no precise information is available on which to base this recommendation. The administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy. 6. *Gallbladder Disease.* Studies report an increased risk of surgically confirmed gallbladder disease in users of OCs and estrogens. In one study, an increased risk appeared after 2 years of use and doubled after 4 or 5 years of use. In one of the other studies, an increased risk was apparent between 6 and 12 months of use. 7. *Carbohydrate and Lipid Metabolic Effects.* A decrease in glucose tolerance has been observed in a significant percentage of patients on OCs. For this reason, prediabetic and diabetic patients should be carefully observed while receiving OCs. An increase in triglycerides and total phospholipids has been observed in patients receiving OCs. The clinical significance of this finding remains to be defined. 8. *Elevated Blood Pressure.* An increase in blood pressure has been reported in patients receiving OCs. In some women, hypertension may occur within a few months of beginning OC use. In the first year of use, the prevalence of women with hypertension is low in users and may be no higher than that of a comparable group of nonusers. The prevalence in users increases, however, with longer exposure, and in the fifth year of use is two and a half to three times the reported prevalence in the first year. Age is also strongly correlated with the development of hypertension in OC users. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure when given OCs. Hypertension that develops as a result of taking OCs usually returns to normal after discontinuing the drug. 9. *Headache.* The onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of OCs and evaluation of the cause. 10. *Bleeding Irregularities.* Breakthrough bleeding, spotting and amenorrhea are frequent reasons for patients discontinuing OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, nonfunctional causes should be borne in mind. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy. If pathology has been excluded, time or a change to another formulation may solve the problem. Changing to an OC with a higher estrogen content, while potentially useful in minimizing menstrual irregularity, should be done only if necessary since this may increase the risk of thromboembolic disease. Women with a past history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of OCs. Women with these preexisting problems should be advised of this possibility and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may also occur in women without previous irregularities. 11. *Ectopic Pregnancy.* Ectopic as well as intrauterine pregnancy may occur in contraceptive failures. 12. *Breast Feeding.* OCs given in the postpartum period may interfere with lactation. There may be a decrease in the quantity and quality of the breast milk. Furthermore, a small fraction of the hormonal agents in OCs has been identified in the milk of mothers receiving these drugs. The effects, if any, on the breast-fed child have not been determined. If feasible, the use of OCs should be deferred until the infant has been weaned. **PRECAUTIONS: General:** 1. A complete medical and family history should be taken prior to the initiation of OCs. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical examination. 2. Under the influence of estrogen-progestogen preparations preexisting uterine leiomyomata may increase in size. 3. Patients with a history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the medication and use an alternative method of contraception in an attempt to determine whether the symptom is drug related. 4. OCs may cause some degree of fluid retention. They should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma, or cardiac or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence of jaundice while receiving OC therapy. If jaundice develops in any patient receiving such drugs, the medication should be discontinued. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution. 7. OC users may have disturbances in normal tryptophan metabolism which may result in a relative pyridoxine deficiency. The clinical significance of this is undetermined. 8. Serum folate levels may be depressed by OC therapy. Since the pregnant woman is predisposed to the development of folate deficiency and the incidence of folate deficiency increases with increasing gestation, it is possible that if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and complications attributed to this deficiency. 9. The pathologist should be advised of OC therapy when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs: a. Increased sulfobromophthalein retention. b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability. c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered. d. Decreased pregnanediol excretion. e. Reduced response to metyrapone test. **INFORMATION FOR THE PATIENT:** See Patient Labeling. **DRUG INTERACTIONS:** Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin. **CARCINOGENESIS, PREGNANCY, NURSING MOTHERS:** See Contraindications and Warnings. **ADVERSE REACTIONS:** An increased risk of the following serious adverse reactions has been associated with the use of OCs: Thrombophlebitis; pulmonary embolism; coronary thrombosis; cerebral thrombosis; cerebral hemorrhage; hypertension; gallbladder disease; benign hepatomas; congenital anomalies. There is evidence of an association between the following conditions and the use of OCs, although additional confirmatory studies are needed: Mesenteric thrombosis; neuro-ocular lesions, eg, retinal thrombosis and optic neuritis. The following adverse reactions have been reported in patients receiving OCs and are believed to be drug related: Nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10 percent or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally: Gastrointestinal symptoms (such as abdominal cramps and bloating); breakthrough bleeding; spotting; change in menstrual flow; dysmenorrhea; amenorrhea during and after treatment; temporary infertility after discontinuance of treatment; edema; chloasma or melasma which may persist; breast changes: tenderness, enlargement and secretion; change in weight (increase or decrease); change in cervical erosion and cervical secretion; possible diminution in lactation when given immediately postpartum; cholestatic jaundice; migraine; increase in size of uterine leiomyomata; rash (allergic); mental depression; reduced tolerance to carbohydrates; vaginal candidiasis; change in corneal curvature (steepening); intolerance to contact lenses. The following adverse reactions have been reported in users of OCs, and the association has been neither confirmed nor refuted: Premenstrual-like syndrome; cataracts; changes in libido; chorea; changes in appetite; cystitis-like syndrome; headache; nervousness; dizziness; hirsutism; loss of scalp hair; erythema multiforme; erythema nodosum; hemorrhagic eruption; vaginitis; porphyria; hemolytic uremic syndrome. **ACUTE OVERDOSE:** Serious effects have not been reported following acute ingestion of large doses of OCs by young children. Overdosage may cause nausea, and withdrawal bleeding may occur in females. **HOW SUPPLIED:** Loestrin **21** 1/20 is available in compacts each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1/20 is available in compacts each containing 21 white tablets and 7 brown tablets. Each white tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills. Loestrin **21** 1.5/30 is available in compacts each containing 21 tablets. Each tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1.5/30 is available in compacts each containing 21 green tablets and 7 brown tablets. Each green tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills.

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Morris Plains, New Jersey 07950

Family Planning

Perspectives

ISSN 0014-7354
Volume 20, Number 1, January/February 1988

Published bimonthly by
The Alan Guttmacher Institute
at 111 Fifth Avenue,
New York, N.Y. 10003.

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139 Harristown Rd.
Glenrock, N.J. 07452
Tel. 201-670-7755.

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Second-class postage paid at New York, N.Y., and additional mailing offices.
Postmaster: Send address changes to Family Planning Perspectives, 111 Fifth Avenue, New York, N.Y. 10003.

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Contraceptive Paths Toward the Reduction Of Unintended Pregnancy and Abortion

By Charles F. Westoff

Summary

Based on data from the 1982 National Survey of Family Growth, exposure to the risk of unintended pregnancy is classified by use of specific contraceptive methods and by nonuse, and average rates of unintended pregnancy are estimated for each type of exposure. Three hypothetical models of improved contraceptive practice are then applied to the data for all women and for age, race and marital-status subgroups. The first two models assume increases in the use of some existing contraceptive methods, but only the second model additionally assumes the introduction of new methods. The third model assumes the complete elimination of nonuse of contraception.

These models yield different estimates of the reduction in unintended pregnancy rates which are illustrated for various age-groups, for whites and blacks and for married and unmarried women. Among all women aged 15–44, the changes assumed by Model I imply a 32 percent reduction in unintended pregnancy; Model II implies a 56 percent reduction; and Model III implies a 57 percent reduction. The implied reductions in abortion are in a similar range.

Among unmarried adolescents, the most substantial reduction in the rate of unintended pregnancy (a decline of 53 percent) would result from the introduction of a new method of contraception along with increases in pill and condom use.

Introduction

In a recent article,[1] we explored the potential impact of possible improvements in contraceptive practice on fertility levels and abortion rates in several European countries and in the United States. The general conclusion was that additional declines of 5–10 percent in the already low fertility levels of these countries is about the most that could be expected from a further decline in unwanted pregnancies. The analysis suggested, however, that the potential impact on abortion rates could be considerable. In order to achieve comparability across countries, the data for U.S. women were confined to white women over the age of 20. For this relatively homogeneous group, we estimated that reductions in abortions could be significant without extreme changes in contraceptive practice.

The current analysis addresses one of the same questions as the earlier article, namely, what is the potential impact of improved contraceptive practice on the unintended pregnancy rate* and on the abortion rate? However, we concentrate exclusively on the United States and expand the scope of the analysis to include teenagers as well as adults, whites and blacks, and married and unmarried women.

Although reducing the number of abortions by reducing the number of unintended pregnancies is of universal interest, it is especially important for the United States, where the abortion rate is so high, particularly within the teenage population. The high rate of abortion in the United States is, of course, a reflection of the high rate of unintended pregnancy, which amounts to more than 50 percent of all conceptions.

Methodology

The aim of our analysis is to estimate unintended pregnancy rates among women exposed to the risk of an unintended pregnancy. We calculate these rates for women who use different methods of contraception as well as for those who do not use any contraceptive methods but who report that they are not seeking to become pregnant. Next, we formulate a series of hypothetical models of improved contraceptive practice to derive the resultant reduction in the rate of unintended pregnancy. The relative reduction in the rate of unintended pregnancy is assumed to be closely related to the expected reduction in the abortion rate.

Data for the analysis are from the 1982 National Survey of Family Growth (NSFG). We have reconstructed monthly exposures to the risk of unintended pregnancy and average annual conception rates for the 24-month period ending nine months prior to the survey. The nine-month margin is imposed to permit observation of the outcomes of pregnancies that were conceived during the preceding two years. Exposure is classified by use of specific contraceptive methods and by nonuse of contraceptives for any reason other than deliberately trying to conceive. Several types of exposure are excluded from our calculations, including waiting time for planned pregnancies; exposure of those (mostly very young women) who have never had coitus; months of gestation; exposure of women classified as noncontraceptively sterile; and particular months reported with no sexual inter-

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Charles F. Westoff is professor of sociology and demographic studies and director of the Office of Population Research at Princeton University. The author acknowledges with appreciation the invaluable computer programming work of Lois Paul and Ozer Babakol of the Office of Population Research, and the many suggestions of Richard Lincoln, Jacqueline D. Forrest and Stanley K. Henshaw of The Alan Guttmacher Institute.

*Unintended pregnancies include both unwanted pregnancies (those occurring after the last wanted birth) and mistimed pregnancies (those occurring sooner than wanted).

Table 1. Percentage distribution of months of exposure to the risk of unintended pregnancy and average annual conception rates* among women aged 15–44, by race and type of exposure, according to age at conception

Type of exposure	Percentage distribution of months of exposure					Average annual conception rates				
	Total	<20	20–24	25–34	35–44	Total	<20	20–24	25–34	35–44
All†										
Pill	21.0	24.4	39.4	20.8	3.7	0.042	0.059	0.065	0.017	0.003
IUD	6.4	0.4	5.8	9.1	5.9	0.021	—	0.084	0.011	0.000
Sterilization	26.5	0.2	5.7	30.8	54.2	0.002	—	0.000	0.003	0.000
Condom	10.0	10.9	10.4	9.6	9.7	0.043	0.089	0.086	0.016	0.017
Rhythm, withdrawal	5.2	4.2	4.8	5.1	6.1	0.131	0.299	0.266	0.091	0.049
Other methods	9.5	4.0	10.8	11.7	8.5	0.117	0.357	0.171	0.100	0.024
Nonuse	21.4	55.9	23.0	12.7	11.9	0.297	0.262	0.473	0.318	0.082
Total	100.0	100.0	100.0	100.0	100.0	0.096	0.197	0.178	0.064	0.017
White										
Pill	20.3	23.1	38.8	20.3	3.5	0.038	0.056	0.061	0.014	0.000
IUD	6.3	0.2	5.5	9.2	5.8	0.020	—	0.085	0.009	0.000
Sterilization	27.4	0.2	5.6	31.0	56.4	0.001	—	0.000	0.003	0.000
Condom	10.9	11.8	11.6	10.7	10.1	0.035	0.072	0.067	0.014	0.016
Rhythm, withdrawal	5.3	4.9	4.8	5.1	6.2	0.127	0.231	0.244	0.093	0.049
Other methods	9.9	4.1	11.3	12.3	8.1	0.104	0.327	0.157	0.083	0.029
Nonuse	19.9	55.6	22.4	11.4	9.9	0.255	0.201	0.409	0.293	0.089
Total	100.0	100.0	100.0	100.0	100.0	0.081	0.158	0.157	0.055	0.016
Black										
Pill	27.3	31.8	45.2	26.8	4.6	0.048	0.065	0.053	0.032	—
IUD	6.9	1.7	7.3	10.2	5.3	0.022	—	0.045	0.021	0.000
Sterilization	19.8	0.0	7.1	26.4	40.5	0.003	—	0.000	0.005	0.000
Condom	4.2	5.8	4.6	3.7	3.3	0.230	0.388	—	0.083	—
Rhythm, withdrawal	3.1	1.5	5.5	2.3	3.8	0.210	—	—	0.175	—
Other methods	7.9	3.1	6.1	8.7	13.3	0.161	—	0.329	0.194	0.000
Nonuse	30.7	56.1	24.2	21.9	29.1	0.443	0.512	0.804	0.386	0.070
Total	100.0	100.0	100.0	100.0	100.0	0.180	0.363	0.261	0.121	0.025

*Adjusted for underreporting of abortion. †Includes women of all races.

Note: In this and subsequent tables, dashes indicate insufficient numerical base.

course.* All of these categories represent nonexposure to the risk of unintended pregnancy.

All conceptions that occurred during the 24 months of the study period are classified by outcome—live birth, stillbirth, miscarriage or induced abortion. As we know from long experience, there is significant underreporting of induced abortions in surveys. The number of abortions reported in the 1982 NSFG were compared with estimates from the periodic surveys of abortion providers carried out by The Alan Guttmacher Institute (AGI) and with the characteristics of women obtaining abortions as estimated by the Centers for Disease Control (CDC). The results indicated that only half of the abortions that occurred in 1981 were reported by the women interviewed in the 1982 NSFG, and differences in the rate of reporting varied greatly by marital status, age and race. Underreporting was greatest among unmarried women, young women and black women. We therefore adjusted the reported abortion data for each of these categories using the detailed AGI and CDC estimates. The results indicate that 62 percent of all pregnancies in the U.S. end in live births, and the remaining 38 percent are divided among induced abortions, miscarriages and stillbirths (27 percent, 11 percent and one percent, respectively). An estimated 47 percent of all unintended pregnancies are terminated by abortion.

Spontaneous abortions are also underreported in surveys, but for different reasons from induced abortions. Most unreported spontaneous abortions no doubt occur early in pregnancy and are not identified by the woman as a miscarriage. No attempt is made here to adjust for this underreporting, since we have no good basis for differential adjustments by race or other characteristics.

Adjusting pregnancy rates for the underreporting of induced abortions involves not only adding events to the numerator but also subtracting exposure time from the denominator. Two assumptions are incorporated into our adjustments: The first is that for each abortion added, we subtract

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*The NSFG included questions about months with no sexual intercourse. We have excluded these months of nonexposure to the risk of unintended pregnancy from the denominator, following the same logic that excludes young women who have never had intercourse. This theoretical refinement is achieved at some cost; in particular, it reduces the sample size because of nonreporting. Moreover, we have no satisfactory way to evaluate the quality [illegible]ems likely that respondents might r[illegible] extending several months or more [illegible] especially if such periods coincided with events such as separation or illness, but it seems highly unlikely that individual months would be recalled accurately. We have compared the pregnancy rates with and without this refinement, and the rates do not differ appreciably, mainly because such a large proportion (88 percent) of the months at risk were reported with sex. The main effect of excluding months of nonexposure is to reduce the number of months of nonuse of contraception, which consequently increases the pregnancy rate for nonuse to 0.297, compared with 0.225 when months of nonexposure are included. These differences in pregnancy rates are mostly confined to nonmarital exposure.

Table 2. Percentage distribution of months of exposure to the risk of unintended pregnancy and average annual conception rates* among women aged 15–44, by marital status and type of exposure, according to age at conception

Type of exposure	Percentage distribution of months of exposure					Average annual conception rates				
	Total	<20	20–24	25–34	35–44	Total	<20	20–24	25–34	35–44
Nonmarital										
Pill	26.2	21.7	37.2	29.7	3.9	0.067	0.070	0.097	0.026	—
IUD	4.2	0.4	5.2	8.1	8.0	0.044	—	0.125	0.007	—
Sterilization	9.0	0.1	2.7	18.5	42.6	0.001	—	0.000	0.001	0.000
Condom	7.7	10.4	8.4	3.1	5.5	0.077	0.090	0.81	—	—
Rhythm, withdrawal	3.6	4.3	3.8	2.9	1.6	0.326	0.329	—	—	—
Other methods	8.5	3.5	10.2	15.2	8.1	0.153	0.414	0.100	0.122	0.000
Nonuse	40.8	59.5	32.5	22.5	30.2	0.286	0.244	0.447	0.319	0.080
Total	100.0	100.0	100.0	100.0	100.0	0.167	0.198	0.218	0.110	0.027
Marital										
Pill	18.0	52.8	41.5	18.3	3.7	0.019	0.015	0.034	0.012	0.003
IUD	7.6	0.3	6.5	9.4	5.4	0.015	—	0.064	0.011	0.000
Sterilization	36.5	0.9	8.7	34.1	56.4	0.002	—	0.000	0.003	0.000
Condom	11.3	16.2	12.5	11.4	10.4	0.029	—	0.080	0.016	0.014
Rhythm, withdrawal	6.0	3.3	5.7	5.7	6.8	0.073	—	0.200	0.056	0.046
Other methods	10.1	8.7	11.4	10.8	8.6	0.100	—	0.227	0.094	0.027
Nonuse	10.5	17.7	13.7	10.3	8.7	0.320	—	0.535	0.310	0.071
Total	100.0	100.0	100.0	100.0	100.0	0.056	0.214	0.139	0.051	0.013

*Adjusted for underreporting of abortion.

from exposure time an average of three months of pregnancy and 1.5 months of postpartum amenorrhea, for a total of 4.5 months; and the second is that the overreported exposure is subtracted from the same category of exposure for which the underreported abortions have been adjusted. The overall net effect of the denominator adjustment is to increase the unintended pregnancy rate for all women by only one percent. However, among certain subgroups that considerably underreport abortions, such as teenagers, the additional adjustment can increase the unintended pregnancy rate by two or three percent. Of course, adjusting the numerator has a much greater effect: For all women, the addition of unreported abortions to the number of unintended pregnancies raises the total unintended pregnancy rate by 36 percent.

After adjusting reported induced abortions according to race, age and marital status, we estimated average annual unintended pregnancy rates by type of exposure.* This kind of rate is different from the more familiar first-year life-table or first-year Pearl rates. Since our interest here is demographic—to estimate the impact of contraceptive practice on the abortion rate—the appropriate measure is the ratio of unintended pregnancies to months of exposure to the risk of unintended pregnancy in a cross-section of the population of women exposed to such risk. Unlike the other measures, which indicate the likelihood of method failure in the first year of use and which are used to counsel women on method choice,† the rate used here combines experience at all durations of use. Hence, while it is an appropriate measure for the demographic task at hand, it is not the best measure for evaluating method efficacy.

Age, Race and Marital Status

The distribution of months of exposure by category during the 24-month study period is displayed according to age and race in the left-hand vertical panel of Table 1 (page 5). The age pattern shows a high proportion of nonuse of contraceptives among teenagers (many of whom have only infrequent exposure); nonuse declines dramatically after age 20 and then remains relatively constant from age 25 to the end of the reproductive years.

The pill, which is the main method used by teenagers, reaches its greatest use among women aged 20–24 and declines markedly thereafter, becoming negligible after age 35. The IUD is most in evidence among women aged 25–34, whereas condom use shows little variation by age, accounting for around 10 percent of exposure across all age-groups. Sterilization, which is now the main method used in the United States, reaches a level of 54 percent of all exposure among women aged 35–44. To provide adequate numbers for analysis, we have combined withdrawal and rhythm, which together account for five percent of all exposure. The category "other methods" includes the diaphragm and miscellaneous other methods and accounts for 9–10 percent of all exposure.

Age patterns of contraceptive use are quite similar for white and black women. However, there are racial differences in specific methods used: Compared with whites, black women use the pill more and rely less on sterilization (especially at older ages), the condom and "other methods." Further, after age 25, black women are less likely than whites to be using a method.

The average annual conception rates for each type of exposure appear in the right-hand vertical panel of Table 1. The total annual conception rate among women of all races and ages is 0.096, which means that 9–10 percent of women exposed to the risk of an unintended conception in the 1980–1981 period became pregnant. The magnitude of the rates varies considerably by type of exposure, age and race. Not surprisingly, sterilization has the lowest conception rate (0.002) and nonuse, the highest (0.297). Conception rates for the IUD, the pill and the condom are on the low side (0.021, 0.042 and 0.043, respectively), whereas the rates for rhythm or withdrawal and "other methods" are on the high side (0.131 and 0.117, respectively). If nonuse of contraceptives is excluded from the calculation, the annual risk of an unintended pregnancy for all contraceptive exposure combined is 0.042 (not shown).

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*Our estimates of the total number of pregnancies in the two-year period correspond very closely with those reported by Henshaw et al. (based on a very different procedure developed by Tietze and Bongaarts). (See: S.K. Henshaw et al., "A Portrait of American Women Who Obtain Abortions," *Family Planning Perspectives*, 17:90, 1985.) We estimate 12.3 million pregnancies and a pregnancy rate of 115 per 1,000 women; their estimate for 1980–1981 is 12.2 million pregnancies and a pregnancy rate of 114.

†"First year of use" is a bit of a misnomer because it refers to the first year of use after the termination of a pregnancy and is not necessarily the first time the woman has used the method.

The estimates of nonuse exposure shown in Table 1 are higher than conventional estimates[2] because they include premarital exposure and exposure among never-married women. The consequence is that the rate of conception among nonusers (0.297) seems low.* However, as we shall see shortly, what counts in our estimates of the impact of contraceptive use on the abortion rate is the product of the proportion of exposure and the conception rate.

As expected, the rate of conception generally declines with age in all categories of exposure. Since we have excluded women who are noncontraceptively sterile from these calculations, the source of this decline undoubtedly lies mainly in the decline of coital frequency with age and duration of marriage.[3] There are several instances where the conception rates are higher among women aged 20–24 than they are among adolescents, but this difference simply reflects the fact that a higher proportion of the older women are in regular sexual unions.

Black women have a conception rate that is more than twice that for white women (0.180 vs. 0.081). This difference arises from two sources: Black women experience higher failure rates with most methods, and, above all, they have a higher conception rate in the nonuse category. Almost one-third of black exposure is in the nonuse category, compared with one-fifth of white exposure. (The higher pregnancy rate among black nonusers is explored in the Appendix, page 11.)

The distribution of exposure and rates of conception are shown by age and marital status in Table 2. For the purpose of this analysis, exposure has been allocated to nonmarital and marital months during the 24-month observation time. Two-fifths (41 percent) of all nonmarital exposure and one-tenth (11 percent) of all marital exposure occur in the absence of contraceptive use. The pill is the main method used by unmarried women, whereas sterilization is predominant for married women.

The rate of unintended pregnancy is three times higher among unmarried women than among married women (0.167 vs. 0.056). The failure rates for all methods, excluding sterilization, are appreciably higher among unmarried women, probably because they use contraceptives less regularly than do married women. On the other hand, the unintended pregnancy rate for nonusers is slightly higher among married women, probably because of their higher frequency of sexual activity.

Table 3. Percentage distribution of unintended pregnancies,* by marital status and age-group and by race and age-group, according to type of exposure

Characteristic	Type of exposure							
	All exposure	Pill	IUD	Sterilization	Condom	Rhythm, withdrawal	Other methods	Nonuse
ALL WOMEN†								
All ages	**100.0**	**6.5**	**1.4**	**0.4**	**4.5**	**6.2**	**12.3**	**66.6**
<20	32.1	2.3	0.0	0.0	1.6	1.8	2.2	24.1
20–24	36.0	4.8	0.8	0.0	1.8	1.9	4.4	22.5
25–34	27.3	1.3	0.6	0.4	0.8	2.0	5.0	17.2
35–44	4.4	0.0	0.0	0.0	0.3	0.6	0.7	2.8
MARITAL STATUS‡								
Unmarried								
All ages	**64.3**	**6.2**	**0.8**	**0.0**	**2.2**	**3.9**	**5.7**	**45.4**
<20	29.7	2.4	0.0	0.0	1.5	1.9	2.1	21.9
20–24	23.0	3.2	0.6	0.0	0.6	1.1	1.5	16.1
25–44	11.6	0.6	0.3	0.0	0.1	0.9	2.2	7.5
Married								
All ages	**35.7**	**2.0**	**0.7**	**0.3**	**2.0**	**2.8**	**6.7**	**21.3**
<20	2.7	0.1	0.0	0.0	0.2	0.0	0.2	2.2
20–24	13.6	1.3	0.4	0.0	1.0	1.0	3.0	6.9
25–44	19.5	0.7	0.3	0.3	0.8	1.8	3.5	12.1
RACE								
White								
All ages	**74.1**	**6.7**	**1.1**	**0.3**	**3.6**	**5.5**	**10.2**	**46.7**
<20	21.3	1.9	0.0	0.0	1.1	1.4	1.7	15.3
20–24	28.4	3.9	0.7	0.0	1.4	1.8	3.9	16.7
25–44	24.4	1.0	0.4	0.3	1.0	2.3	4.6	14.7
Black								
All ages	**25.9**	**1.7**	**0.2**	**0.1**	**1.4**	**0.8**	**1.9**	**19.8**
<20	10.1	0.5	0.0	0.0	0.8	0.5	0.6	7.6
20–24	8.2	0.7	0.1	0.0	0.4	0.1	0.6	6.3
25–44	7.7	0.5	0.1	0.1	0.2	0.2	0.8	5.9

*Includes unintended pregnancies excluded in Tables 1 and 2 because of nonresponse to the question on months of sexual intercourse.

†Includes women of all races.

‡The distributions by marital status do not all correspond precisely to the distributions for all women because the adjustments for underreporting of abortion were based in one instance on age by marital status, and in the other instance on age by race.

Note: The 25–34 and 35–44 age-groups have been combined in the marital status and race subgroups.

Distribution of Unintended Pregnancies

The previous analysis focused on the experience of particular age-groups within the populations of white and black women and married and unmarried women. However, we can also estimate the comparative contributions of age-race and age–marital status combinations to all unintended pregnancies.

The first panel of Table 3 shows that teenagers account for nearly one-third (32 percent) of all unintended pregnancies, and that three-quarters of adolescent unintended pregnancies occur among teenagers who do not practice contraception. At the opposite end of the age continuum, women aged 35–44 account for only four percent of all unintended pregnancies. Women in the 20–24 age-group are responsible for the largest proportion of unintended pregnancies (36 percent), and those aged 25–34 account for about one-quarter of such pregnancies (27 percent). The single most dramatic statistic in Table 3 is that two-thirds of all unintended pregnancies result from nonuse of contraceptives.

The second and third panels of the table enlarge the focus to include marital status as well as age. Overall, nearly two-thirds (64 percent) of all unintended pregnancies result from nonmarital exposure, and almost all of this exposure occurs among women under 25 years of age. It is clear that unmarried teenagers contribute disproportionately to unintended pregnancies (30

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*This applies only to the rate of unintended pregnancy among nonusers. If we add the experience of women trying to become pregnant, the rate is 0.360.

Table 4. Percentage decline in unintended pregnancy rates resulting from three hypothetical models of improved contraceptive practice, by age-group and race, according to percentage distribution of exposure

Model	Percentage distribution of exposure									Implied unintended pregnancy rate	% decline
	Pill	IUD	Condom	Sterilization	Rhythm, withdrawal	Other methods	Nonuse	New methods	Total		
TEENAGERS											
All											
Current	24	0	11	—	4	4	56	0	100	0.197	na
Model I	37	0	22	—	7	6	28	0	100	0.157	20
Model II	37	0	25	—	5	4	14	15	100	0.113	43
Model III	55	1	25	—	10	9	0	0	100	0.117	41
White											
Current	23	0	12	—	5	4	56	0	100	0.158	na
Model I	35	0	24	—	7	6	28	0	100	0.129	18
Model II	35	0	27	—	5	4	14	15	100	0.095	40
Model III	52	1	27	—	11	9	0	0	100	0.103	35
Black											
Current	32	2	6	—	1	3	56	0	100	0.363	na
Model I	48	2	15	—	4	3	28	0	100	0.256	29
Model II	48	2	15	—	4	2	14	15	100	0.184	49
Model III	72	4	13	—	4	7	0	0	100	0.133	63
WOMEN 20–24											
All											
Current	39	6	10	6	5	11	23	0	100	0.178	na
Model I	48	4	21	6	4	6	11	0	100	0.124	30
Model II	42	3	17	8	4	5	6	15	100	0.093	47
Model III	51	8	13	8	6	14	0	0	100	0.089	50
White											
Current	39	5	12	6	5	11	22	0	100	0.157	na
Model I	47	4	22	6	4	6	11	0	100	0.111	29
Model II	42	3	18	8	4	5	5	15	100	0.081	48
Model III	50	7	15	7	6	15	0	0	100	0.085	46
Black											
Current	45	7	5	7	6	6	24	0	100	0.261	na
Model I	57	5	10	7	4	5	12	0	100	0.182	30
Model II	47	5	10	7	5	5	6	15	100	0.135	48
Model III	60	10	6	9	7	8	0	0	100	0.097	63
WOMEN 25–44											
All											
Current	15	8	9	39	6	11	12	0	100	0.048	na
Model I	17	6	11	48	4	8	6	0	100	0.030	37
Model II	17	6	10	47	1	1	3	15	100	0.017	64
Model III	17	9	11	45	6	12	0	0	100	0.021	57
White											
Current	14	8	10	40	6	11	11	0	100	0.042	na
Model I	16	6	12	49	4	8	5	0	100	0.026	39
Model II	16	6	11	48	1	1	2	15	100	0.014	67
Model III	16	9	12	45	6	12	0	0	100	0.019	54
Black											
Current	19	9	4	31	3	10	24	0	100	0.088	na
Model I	24	7	4	42	3	8	12	0	100	0.056	36
Model II	24	6	3	43	1	2	6	15	100	0.034	61
Model III	25	11	5	41	4	14	0	0	100	0.034	61
WOMEN 15–44											
All											
Current	21	6	10	27	5	10	21	0	100	0.096	na
Model I	25	4	20	30	4	6	11	0	100	0.065	32
Model II	25	4	15	31	2	3	5	15	100	0.042	56
Model III	27	8	13	34	6	12	0	0	100	0.041	57
White											
Current	20	6	11	27	5	10	20	0	100	0.081	na
Model I	24	4	22	31	4	5	10	0	100	0.054	34
Model II	24	4	16	32	2	2	5	15	100	0.036	55
Model III	25	8	14	34	7	12	0	0	100	0.038	53
Black											
Current	27	7	4	20	3	8	31	0	100	0.180	na
Model I	33	6	8	25	4	8	16	0	100	0.128	29
Model II	32	5	9	25	3	3	8	15	100	0.087	51
Model III	39	10	6	29	4	12	0	0	100	0.063	65

Note: na = not applicable.

percent of the total for women of all ages and marital statuses). Three-quarters of unintended pregnancies among unmarried teenagers result from nonuse of contraceptives. Theoretically, if teenagers delayed sexual intercourse until marriage, the number of unintended pregnancies would be significantly reduced. More realistically, since the bulk of adolescent pregnancies occur among nonusers, a significant reduction in unintended pregnancies could be achieved if more sexually active teenagers used birth control.

The last two panels of Table 3 focus on race and age simultaneously.* Overall, white women account for 74 percent of all unintended pregnancies and black women account for 26 percent, about twice their proportion in the population.

Models of Improved Contraceptive Use

There is virtually an unlimited number of possible scenarios for improved contraceptive practice, but we have limited ourselves to only three. Our approach is to hypothesize different mixes of contraceptive method use and nonuse, apply the pregnancy rates currently associated with these types of exposure at different ages and then calculate the reduction in the rate of unintended pregnancy implied by each model. The first two hypothetical models assume changes in the use of some existing contraceptive methods, but only the second model also assumes the introduction of new methods. (In models I and II we show no change in IUD use or a decrease that is consistent with recent changes in its availability.) The third model assumes universal use of existing methods of contraception.

We have delineated the three basic models of improved pregnancy control in Table 4. We examine whites and blacks separately within each age-group, and then we aggregate them into the total. The current distribution of types of exposure is displayed along with each set of models.

The first three panels of Table 4 show the implications for teenagers of each model. Model I depicts a possible short-range target for increased contraceptive use. For both white and black teenagers, it assumes a 50 percent increase in the use of the pill, at least a doubling of condom use, a slight increase in the use of the remaining methods and a 50 percent decline in nonuse. These changes are equivalent to a contraceptive use pattern in which almost half of nonuse is redistributed more or less proportionately among the methods currently used. Such a shift implies a modest reduction of 20 percent in the unintended pregnancy rate.

Model II incorporates the use of new methods by 15 percent of the teenagers at risk. This model is purely hypothetical because the only new methods on the horizon are implants, which may be inappropriate for teenagers, and RU 486, the French product that induces early abortion. One can easily imagine the potential popularity of RU 486 (or some improved antiprogestational agent that could be self-administered) in the teenage population, where sex is irregular and contraception is not a routine. However, the abortifacient character of the product makes its adoption in the United States highly unlikely in the foreseeable future. Nevertheless, we have included it simply to illustrate the effect its introduction might have on lowering the unintended pregnancy rate. (We have arbitrarily assigned a 0.020 failure rate to new methods.) Model II also features a substantial increase in pill and condom use over the levels of current use, little change in other methods and a further halving of nonuse to 14 percent. These changes imply a 43 percent reduction in the rate of unintended pregnancy among teenagers—more than twice the reduction implied by Model I.

Model III has been created simply to show the effects of eliminating all nonuse and of redistributing nonuse exposure proportionately among the different methods currently in use. Considering that 56 percent of the teenage population are nonusers, the effect of eliminating all nonuse does not imply as large a decline in the unintended pregnancy rate as one might expect. Although eliminating nonuse does imply a substantial decline in the rate among black teenagers, it brings about a much smaller decline among whites (63 percent vs. 35 percent).

Since both white and black teenagers experience about the same amount of nonuse exposure, the explanation for the differential decline in unintended pregnancies lies in the different pregnancy rates of the two groups: Among black teenagers, the pregnancy rate for nonusers is more than twice that among white nonusers (0.512 vs. 0.201). The lower pregnancy rate among white nonusers reflects the selection of more sexually active white teenagers into users of methods that happen to have high failure rates. The higher rate among black nonusers is probably a consequence of their earlier initiation of sexual activity.† In fact, among some teenagers, differences in age at sexual initiation paradoxically result in some methods' having higher pregnancy rates than does nonuse. However, we do not wish to minimize the importance of contraceptive practice among teenagers. If all teenagers at risk were to adopt the pill and its failure rate remained unchanged, for example, their unintended pregnancy rate would decline by 70 percent.

Older Women

The picture for young women aged 20–24 is different from that for teenagers because of the lesser role played by nonuse of contraceptives. Whereas nonuse accounts for 56 percent of teenage exposure, it declines to 23 percent among women aged 20–24, whose sexual activity is more frequent. However, because of the frequency of their sexual activity, 20–24-year-old nonusers have a higher rate of conception than do comparable teenagers; this rate is especially high (0.804) among black nonusers.

The changes in contraceptive practice depicted in the three models for 20–24-year-olds follow a similar logic to those for teenagers, except that contraceptive sterilization, with its near-zero failure rate, begins to attain importance. Model I, which hypothesizes an increase in pill and condom use, shows a 50 percent decline in nonuse; it implies a reduction of 30 percent in the unintended pregnancy rate. Model II, which incorporates new methods and features an even greater decline in nonuse, implies a 47 percent reduction in unintended pregnancies.

Model III, which eliminates nonuse completely and reallocates nonuse exposure proportionately among the methods currently used by the 20–24 age-group, implies a 50 percent reduction in the unintended pregnancy rate. However, because of the especially high pregnancy rate among black nonusers in this age group, the elimination of nonuse in this model effects a greater reduction in unintended pregnancies among black women than among white women (by 63 percent vs. 46 percent). The difference occurs even though the proportion of nonuse exposure is about the same for women of both races.

In order to simplify the presentation, we have combined the experience of women aged 25–44, although some loss of precision results. The distribution of methods used by women aged 35–44 is completely dominated by sterilization, and their pregnancy

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*In principle, we could distribute race, age and marital status simultaneously, but estimates for incomplete abortion reporting are not available in such detail. Any further indirect estimation would simply add greater instability.

†Seventy-four percent of black women reported having had sexual intercourse by age 19, compared with 53 percent of white women. (See: C.A. Bachrach and M.C. Horn, "Married and Unmarried Couples," *Vital and Health Statistics*, Series 23, No. 15, 1987.)

Table 5. Percentage decline in unintended pregnancy rates among unmarried teenagers and women aged 20–24 resulting from three hypothetical models of improved contraceptive practice, by percentage distribution of exposure

Model	Percentage distribution of exposure									Implied unintended pregnancy rate	% decline
	Pill	IUD	Condom	Sterilization	Rhythm, withdrawal	Other methods	Nonuse	New methods	Total		
Unmarried teenagers											
Current	22	0	10	0	4	4	60	0	100	0.198	na
Model I	44	0	20	0	3	3	30	0	100	0.144	27
Model II	44	0	26	0	0	0	15	15	100	0.094	53
Model III	53	1	26	0	11	9	0	0	100	0.134	32
Unmarried women 20–24											
Current	37	5	8	3	4	10	33	0	100	0.218	na
Model I	52	3	17	3	3	6	16	0	100	0.145	33
Model II	52	0	20	2	1	2	8	15	100	0.107	51
Model III	55	8	12	4	6	15	0	0	100	0.088	60

rates are lower than those among women aged 25–34 for virtually all types of exposure (probably because of lower coital frequency). As Table 1 indicated, the overall rate of conception among women aged 25–34 is 0.064 and among women aged 35–44 is 0.017; the combined rate is 0.048.

The contraceptive changes in Model I are slightly different for women aged 25–44 than they are for younger women. This model anticipates a small increase in pill and condom use, a slight decrease in IUD use and a sharp increase in sterilizations. Other types of exposure are expected to decline, with nonuse reduced by half. Model I implies a 37 percent reduction in unintended pregnancies for this age-group.

In Model II, 15 percent of all exposure is once again assigned to new methods, with users drawn from the ranks of nonusers and from women using withdrawal, rhythm and other methods. Increases in pill use and sterilization and the decrease in IUD use are in the same proportions as in Model I. This set of changes would result in a decline of 64 percent in the rate of unintended pregnancy for 25–44-year-olds.

Once again, Model III assumes zero nonuse, with nonuse exposure distributed proportionately among the methods currently in use. Such changes would result in a decline of 57 percent in unintended conceptions among 25–44-year-olds.

These model calculations are aggregated for women of all ages in the last three sections of Table 4. The most realistic improvement—represented by Model I, with an increase in use of the pill, sterilization and the condom—implies a reduction of unintended pregnancies for all women combined of about one-third. The introduction of new methods and the further reduction in nonuse shown in Model II implies a 56 percent reduction in unintended pregnancies. The universal practice of contraception in proportion to methods currently used, shown in Model III, implies a 57 percent reduction in the rate. The implied reduction among black women in Model III reaches 65 percent, but this assumes a very high proportion of pill users (39 percent).

Unmarried Young Women

Reducing the number of unintended pregnancies among young, unmarried women is a particularly important goal since the broad social costs are greatest for women in this group. Collectively, unmarried women who conceive before the age of 25 are estimated to be responsible for 53 percent of all unintended pregnancies (see Table 3). Consequently, it is especially important to determine the potential for improved contraceptive practice among these women.

In Table 5, we have separated unmarried women into teenagers and women aged 20–24. As we have seen, nonuse of contraceptives dominates the exposure profile of unmarried teenagers, accounting for 60 percent of all exposure. Only the pill and the condom are used with any frequency in this age-group. Model I projects a doubling of pill and condom use, with a commensurate 50 percent reduction in nonuse. These changes imply a 27 percent reduction in the rate of unintended pregnancy, from a current rate of 0.198 to one of 0.144. Eliminating nonuse completely (in Model III) and redistributing contraceptive exposure proportionately yields only a marginally better result than that implied by Model I, because the large increase in pill use, from 22 percent to 53 percent, is offset by increases in the use of rhythm or withdrawal and other methods; both of these categories have very high failure rates among unmarried teenagers. In fact, unintended pregnancy rates are higher among teenagers who use these methods than they are among nonusers, probably because of the greater frequency of sexual activity of those who use a method.

The most substantial change in unintended pregnancy rates among teenagers results from the introduction of a new method along with increases in pill and condom use, despite 15 percent nonuse of contraceptives. This scenario (Model II) produces a 53 percent reduction in the unintended pregnancy rate of unmarried teenagers.

Our projected changes in contraceptive practice among unmarried women aged 20–24 follow essentially the same logic as those among unmarried teenagers. The main difference between the two age-groups is that initially, the level of nonuse among the older women is lower and the level of pill use is higher. The implied declines in the rates of unintended pregnancy are of the same order of magnitude as for teenagers, except in Model III. In this projection, unintended pregnancies would decline by 60 percent among unmarried women aged 20–24 but by 32 percent among unmarried teenagers. This is a quite unrealistic projection for both age-groups, however, since some nonuse will persist, and, of course, pill use will not increase as much as these numbers would suggest. Of course, the point of Model III is to estimate the effect of eliminating nonuse, and the impact is substantial among 20–24-year-old unmarried women.

Implications for Abortion

Our analysis has concentrated on the relative contribution of various population subgroups to unintended pregnancies, and has created different hypothetical models for the reduction of such pregnancies through improvements in contraceptive practice. Our logic assumes that a particular reduction in unintended pregnancies implies a similar reduction in induced abortions. However, the propensity to abort an unintended conception is much greater among younger and unmarried women than among older and married women. Among women under age 25, 53 percent of unintended pregnancies are aborted, compared with 36 percent among older women. Among unmarried women, the proportion of unintended pregnancies that are aborted is 63 percent, compared with 21 percent among married women. When these age and marital status differences are taken into account and the implied reductions in the number of abortions are recalculated for all women, the results are reductions in the abortion rate of 32 percent, 55 percent and 48 percent for Models I, II and III, respectively. In fact, the projected reductions in the abortion rate differ only for Model III, which implies a 57 percent reduction in the unintended pregnancy rate.

Discussion

Normally in a social science report of this kind, researchers express caution about the sampling procedures, the questions asked and the quality of responses—particularly responses as to dates, contraceptive use and pregnancy intentions. The nature of our analysis creates two additional concerns that need to be addressed: the extent of the underreporting of abortion and the assumptions underlying our models of future contraceptive practice.

We based our adjustments for the underreporting of abortions on the periodic AGI survey of service providers and the CDC abortion summaries, which provide information on age, race and marital status. However, these sources do not include information on the possible association between the use (or nonuse) of particular contraceptive methods and the quality of abortion reporting. Although the evidence internal to the 1982 NSFG does not suggest that this is a serious issue, there is a possibility that our procedure, which ignores such possible associations, could result in some serious distortions. We will have a more definitive view when the evidence from a new AGI study that focuses on this very issue becomes available.

A more serious problem is that our models of possible future contraceptive practice implicitly assume that different methods (or nonuse of methods) have particular pregnancy rates that are independent of possible differences in the kinds of people who are in each of the contraceptive-use categories. For example, if we redistribute half of nonuse to pill use, we assume that the current failure rate of the pill would remain unchanged following its adoption by a large number of nonusers. Conversely, it is also implied that the switchover of half of the nonusers (who may be becoming more sexually active) to user categories would leave the pregnancy rate of the remaining nonusers unaltered. This general problem applies to all method changes and is particularly relevant for changes to a method that is very sensitive to behavior (like rhythm or withdrawal, but unlike sterilization).

In principle, it is possible to estimate such selectivities by analyzing past failure rates in a matrix of transitions from one method to another; however, in reality, the demands of such an analysis exceed the potential of the available data. The conclusion that applies to our exercise is that the reduction in unintended pregnancies derived from different hypothesized models of future contraceptive practice depends upon the general validity of the proposition that current method failure rates are reasonably representative of failure rates for the same methods with different compositions of users.

These caveats aside, our hypothesized Model I has shown that for all women of reproductive age, increases in the use of the pill, sterilization and the condom and a halving of nonuse would reduce current levels of abortion by nearly one-third. This translates to nearly half a million fewer abortions annually. If all nonuse exposure were eliminated and nonuse were distributed proportionately among the methods currently in use, as in Model III, there would be a 48 percent decline in the number of abortions. And finally, in Model II, the adoption of new methods by 15 percent of women exposed to risk, along with increases in the use of the condom and sterilization and a decrease in nonuse to one-quarter of its current level, would reduce the number of abortions by more than 50 percent.

Since the majority of abortions (68 percent) occur among unmarried women under the age of 25, the potential for reducing unintended pregnancies in this group is particularly important. If the changes represented by Model I were realized for these women alone, more than 300,000 abortions could be averted annually.

This analysis has been confined to estimating the potential for reducing the abortion rate by altering contraceptive practice. Of course, the changes in Model I are the least unrealistic, those in Model II are much more radical, and Model III is simply a device to assess the effect of completely eliminating nonuse. However, the more difficult question of how contraceptive practice can be altered is beyond our purview. We have suggested simply that the potential is considerable.

Appendix 1. Black-White Differential in Pregnancy Rates Among Nonusers

Our calculations have indicated higher pregnancy rates among black women than among white women for most types of exposure. The anomalous feature is the much higher rate for black nonusers, which is almost two times that for white nonusers. Why should this be? We do not believe that

Appendix Table 1. Proportion of total exposure among whites and blacks that is contraceptive, and ratio of black to white pregnancy rates for nonusers, adjusted and unadjusted for underreporting of abortion, for three categories of nonuse, by age at conception

Exposure	Age at conception				
	All ages	<20	20–24	25–34	35–44
Contraceptive exposure (proportion)					
White	0.611	0.374	0.583	0.670	0.676
Black	0.524	0.355	0.557	0.611	0.494
Nonuse exposure (ratio of black to white pregnancy rates)					
At risk					
Adjusted ratio	1.74	2.55	1.97	1.32	0.79
Unadjusted ratio	1.22	1.97	1.34	0.84	0.48
At risk plus planned pregnancy					
Adjusted ratio	1.49	2.64	2.13	0.94	0.59
Unadjusted ratio	1.15	2.18	1.77	0.71	0.41
All categories (gross nonuse)					
Adjusted ratio	2.24	2.22	2.09	2.09	1.08
Unadjusted ratio	1.63	1.89	1.47	1.69	0.72

Appendix Table 2. Percentage distribution of months of nonuse risk exposure, by coital frequency in the last three months of intercourse, according to age-group and race

Age and race	Percentage distribution of nonuse risk exposure				
	1 time per month	2–3 times per month	1 time per week	>1 time per week	Total
All ages					
White	16.2	24.7	24.9	34.2	100.0
Black	22.2	30.6	21.7	25.5	100.0
<20					
White	17.1	28.3	23.8	30.8	100.0
Black	33.5	35.2	18.2	13.0	100.0
20–24					
White	20.0	17.0	25.2	37.7	100.0
Black	14.6	30.1	22.1	33.2	100.0
25–34					
White	11.6	23.8	22.3	42.3	100.0
Black	19.1	24.1	21.0	35.8	100.0
35–44					
White	16.4	30.8	32.4	20.4	100.0
Black	12.0	32.1	29.5	26.3	100.0

the answer lies in differences between the races in fecundability. In fact, we would expect black women to have *lower* pregnancy rates than whites because they have a higher prevalence of sexually transmitted diseases.

The following are some other possible explanations for the race differential in pregnancy rates among nonusers:

- Fecund white women are more likely to use contraception than are fecund black women.
- Adjustments for the underreporting of abortions contribute more to increasing the pregnancy rate for black women than for white women.
- Proportionately more white women than black women do not practice contraception in order to become pregnant. Hence, if nonuse exposure for planned pregnancies were included in our calculations, and not just nonuse exposure to the risk of an unintended pregnancy, the race differential might disappear.
- Our exclusion of certain categories of exposure from the denominators of pregnancy rates—such as exposure contributed by sterile women, gestation time and months without intercourse—might lead to seemingly higher pregnancy rates among black women.
- If black women had higher rates of coital frequency in the absence of contraception than white women, this would result in higher pregnancy rates for blacks.

Appendix Table 3. Nonuse pregnancy rates* and ratios of black to white rates by marital status

Marital status	Nonuse risk exposure	All nonuse exposure
Nonmarital		
White	0.230	0.277
Black	0.467	0.513
Black-white ratio	2.03	1.85
Marital		
White	0.312	0.828
Black	0.260	0.519
Black-white ratio	0.083	0.63
All		
White	0.255	0.332
Black	0.443	0.496
Black-white ratio	1.74	1.49

*All rates are confined to months with sex.

Although the data for evaluating these possibilities are less than ideal, we have tried to explore the plausibility of each of these explanations with the data at our disposal.

In order to test our first hypothesis, we compared the proportion of total exposure that is contraceptive for white and black women by age-group. As Appendix Table 1 (page 11) shows, there is no strong evidence of the selectivity of white women into contraceptive exposure except at ages 35–44. And at these older ages, the pregnancy rate for nonuse is higher among white women than among black women (see Table 1, page 5). At all other ages, the proportions of women who practice contraception are similar, but, as Table 1 showed, the pregnancy rates for nonusers are higher among black women than among white women. It seems unlikely that selective fecundability explains the race differential.

To evaluate the effect on the race differential of adjusting for the underreporting of abortions, we compared the adjusted and unadjusted ratios of black to white pregnancy rates for nonusers. As Appendix Table 1 shows, the unadjusted ratios indicate a reduced black-white differential in pregnancy rates (from 1.7 with adjustment to 1.2 without adjustment). However, since blacks *do* underreport abortion more than do whites, the effect of the adjustment for underreporting is not surprising and does not explain the differential.

Although the total adjusted number of abortions for white and black women used in our calculations corresponds closely to AGI estimates (as it should, given the fact that the adjustment is based on AGI abortion counts), there are some divergences by age with the NSFG data, which yield too many abortions under age 25 and too few at older ages. The divergence has the effect of exaggerating the black-white differential in teenage pregnancy rates. However, it does not explain the racial differences in pregnancy rates among 20–24-year-olds or among women of all ages.

We next examined the effect on the black-white pregnancy ratios of adding nonuse exposure for planned pregnancies. Including this type of nonuse reduces (but does not eliminate) the racial differential in adjusted pregnancy rates (from 1.7 when only nonuse risk exposure is included to 1.5 when both types of nonuse exposure are combined). As expected, ratios unadjusted for abortion underreporting are lower than adjusted ratios for every age-group.

The gross nonuse-exposure category shown in the last panel of the table has a cruder denominator that includes sterile women, months of gestation and months without intercourse. Including these exposures widens the racial differential in pregnancy rates for all age-groups except teenagers.

Coital frequency is a variable of obvious relevance for fecundability. No data were collected that would permit connecting monthly coital frequency with the probability of conception, but the NSFG did include a question about the frequency of intercourse during the last three months of intercourse. Clearly, such information is inadequate for our purposes, because the question relates to coital frequency in the last three months rather than to coital frequency in the two-year period that we have used in our analyses. We are obliged to assume that the report of recent coital frequency is a proxy for earlier behavior.

As Appendix Table 2 shows, reported coital frequency among black nonusers turns out to be lower than that among white nonusers, at least for women under age 35. Forty-seven percent of black experience, compared with 59 percent of white experience, is associated with coital frequency of once a week or more. The comparable proportions for nonuse exposure that includes waiting time for planned pregnancies are 49 percent for black experience and 61 percent for white experience (not shown). Thus, it appears that the higher pregnancy rate among black nonusers is not readily explainable by higher coital frequency rates.

None of these hypotheses fully explain the racial differential in nonuse pregnancy rates. One other tack we pursued indicates that the "excess" in pregnancy rates for black nonusers is apparent only for nonmarital exposure (primarily at the younger ages). As Appendix Table 3 shows, among married nonusers, white pregnancy rates are higher than black rates, and they are especially higher when waiting time for planned pregnancies is added to nonuse risk exposure (possibly because more white women know when to schedule intercourse for intended conceptions, or because of various other unobserved factors). However, the proportion of months of total nonuse exposure reported to have been with sexual intercourse is higher for blacks than for whites (78 percent vs. 62 percent, respectively); but no such difference appears between white and black marital exposure.

We are forced to conclude that we have no satisfactory explanation for why pregnancy rates are higher among blacks than among whites in the absence of contraception. However, the fact that the race differential varies dramatically according to marital status strongly suggests some type of behavioral selection. One possibility is that white women are more likely to marry when they become pregnant than are black women, an explanation that would be consistent with our observation of higher pregnancy rates among white married women and lower rates among white unmarried women. Our strategy of classifying all exposure by marital status at the time of conception may not have succeeded in eliminating the misreporting of dates of marriage or birth. However, no plausible reallocation of white pregnancy experience from marital to nonmarital exposure would be adequate to erase the racial differences.

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Teenagers Willing to Consider Single Parenthood: Who Is at Greatest Risk?

By Allan F. Abrahamse, Peter A. Morrison and Linda J. Waite

Summary

Data from the High School and Beyond panel study indicate that of 13,061 female high school sophomores who responded to both the baseline questionnaire in 1980 and a 1982 follow-up, 41 percent of blacks, 29 percent of Hispanics and 23 percent of non-Hispanic whites said they either would or might consider having a child outside of marriage. Such willingness was higher among young women who, according to their background characteristics, were at greater risk of teenage parenthood. In addition, young black women were more willing to consider having a child while single than were white or Hispanic respondents, at every level of risk. The data also show that, with the possible exception of Hispanics, willing respondents generally registered much higher rates of nonmarital childbearing over the two years following the baseline survey than the young women unwilling to consider nonmarital childbearing.

Respondents' reports on their own disciplinary problems in school and on their class-cutting and absenteeism showed that such problem behavior was related to the teenagers' willingness to consider nonmarital childbearing: Proportionally more of the respondents who ranked high on a scale of problem behavior were willing to do so, even when background differences were controlled for. In addition, when the respondents' educational expectations were used as proxy measures of the potential opportunity costs of single parenthood, the results revealed that the higher their educational expectations, the lower their willingness to have an out-of-wedlock birth. This pattern persisted when the young women's background risk of teenage childbearing was considered. Finally, at least among Hispanic and white respondents, individuals who reported several instances of depression in the previous month were more likely to claim that they would consider nonmarital childbearing than were their nondepressed peers.

Thus, the willingness to consider single motherhood can be traced to patterns of nonconforming behavior, to the educational opportunity costs of becoming a single mother and, at least among whites and Hispanics, to self-reported depression, which may be a proxy for low self-esteem.

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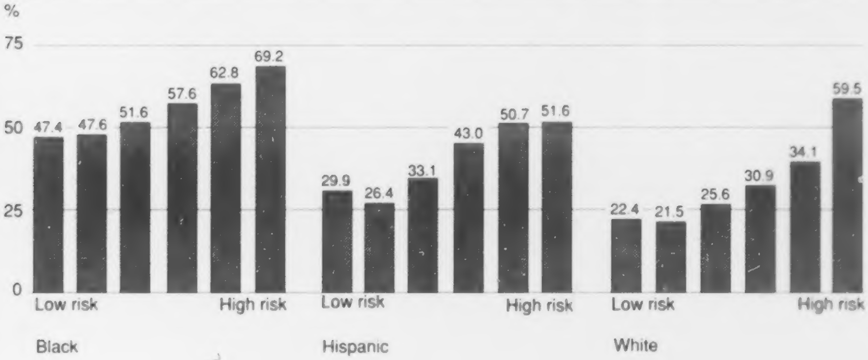
Figure 1. Percentage of female high school sophomores willing to consider nonmarital childbearing, by background risk of nonmarital childbearing, according to race or ethnicity



Note: In this and subsequent figures, willing is defined as responding "yes" or "maybe" to the question "Would you consider having a child if you weren't married?"

Introduction

By 1986, a majority of all black children lived in single-parent families. In addition, 18 percent of white children lived with only one parent, double the proportion in 1970.[1] A major reason for the high levels of single parenthood is that many children today are being born to unmarried teenagers.

Some observers argue that nonmarital childbearing by contemporary teenagers reflects an erosion of traditional social controls on reproduction. This contention has intensified public concern with the principal institutions—the family, the church and the schools—that traditionally have set and monitored standards of appropriate sexual and reproductive conduct. Such an interpretation, however, accounts only partially for the uncommonly high rates of single childbearing among contemporary U.S. teenagers. Social transformations often merely accentuate other individual factors, such as low academic ability, rebelliousness or lack of self-esteem, that predispose some adolescents to become single parents.

Despite sharing an age-group, young women in their midteens vary widely in their aspirations and attitudes, the types of peers with whom they associate and their stage of cognitive development. Nevertheless, certain relatively permanent features of their lives—family socioeconomic status, family structure, personal ability and, especially, race or ethnicity—clearly foreshadow distinctive patterns of marriage and family formation, most notably out-of-wedlock childbearing. The typical pattern among contemporary white women involves marriage in their early or mid-20s and the birth of their first child several years thereafter.[2] Among contemporary black women, in contrast, the pattern is often one of teenage childbearing outside of marriage: In 1985, for example, 42 percent of black mothers were teenagers when they bore their first child (compared with 20 percent of whites), and 92 percent of such first births to black teenagers occurred out of wedlock (compared with 48 percent for white teenagers).[3]

Table 1. Percentage distribution of female high school sophomores, by their response to the question of whether they would be willing to consider nonmarital childbearing, according to race or ethnicity, High School and Beyond, 1982

Response	Race/ethnicity		
	Black (N=1,759)	Hispanic (N=2,242)	White (N=9,060)
Yes	13.1	8.9	5.3
Maybe	28.3	20.1	17.8
No	44.7	62.9	73.5
No response	14.0	8.2	3.5
Total	100.0	100.0	100.0

Behind these racially distinct reproductive patterns lie differences in attitudes toward marriage and single childbearing. Compared with their white counterparts, black teenage women are more likely both to favor having their first birth before age 20[4] and to report an ideal age at first marriage that is older than the age they specify as ideal for a first birth.[5] Blacks also perceive less social condemnation of single childbearing than do whites,[6] as well as less unfavorable reactions to a nonmarital conception from peers and from their male partners.[7] Data from the panel survey described below reflect this racial distinction.[8] About half of the black female high school sophomores and one-fourth of the whites who participated in the study (when nonrespondents are excluded) said they might consider having a child out of wedlock.

High School and Beyond

The data presented in this article are taken from the High School and Beyond panel study, a large, nationally representative study begun in spring 1980 that has conducted follow-up surveys at two-year intervals since then. The baseline survey involved young women and men in the sophomore and senior classes of a nationally representative sample of 1,015 schools. In spring 1982, subsamples of the first survey sample, including all who remained in the same schools they had attended at the time of the 1980 survey and about 50 percent of those who had not remained (i.e., dropouts, transfers and early graduates), were contacted again. The response rates for the first follow-up were 96 percent among students still in school, 92 percent among early graduates, 91 percent among transfers and 88 percent among dropouts.

In this article, we shall focus on the 1980 sophomores (mostly 15 and 16 years old at that time) who said that they would consider becoming single mothers: What kinds of persons are they, and what in their backgrounds, capabilities or the parenting they have received distinguishes them? Equally important, are they actually more likely to become single teenage mothers by 17 or 18?

The analytic sample used in this article is a subset of cases from the 1980 sophomore cohort—the 13,061 young women who responded to both the baseline questionnaire in 1980 and the 1982 follow-up and who neither were married nor were parents at the baseline survey. A total of 342 of these women had become single mothers by 1982. The 3,293 young women who claimed in 1980 that they might consider having a child out of wedlock are compared with their peers who rejected the idea. From those thousands of individual cases, we isolate the individual, familial and societal factors that can foster or suppress the willingness to have a nonmarital birth, and describe the relationship between the willingness to become and the likelihood of actually becoming a single teenage mother. Since our objective is to search for patterns that would warrant further detailed study, we do not report tests of statistical significance in this article.*

Premarital childbearing reflects the interplay of the biological capacity to reproduce and the social forces that discourage one from doing so before marriage. In the past, as a result of such forces, young people generally either postponed sexual activity until a culturally defined "marriageable" age or had marriage prescribed for them as the way to resolve a premarital pregnancy when it occurred. In recent generations, however, young women appear to have developed the biological capacity to reproduce earlier,[9] and sexual activity commences at a young age: For example, 38 percent of blacks and 27 percent of whites are sexually active by age 16.[10] At the same time, contemporary women typically postpone marriage for several years beyond their late teens.[11] Accordingly, young women now face a prolonged period of either sexual abstinence or exposure to the risk of premarital conception. Finally, single teenagers who conceive and carry the pregnancy to term are now more inclined than ever to bear the child out of wedlock rather than marry.[12]

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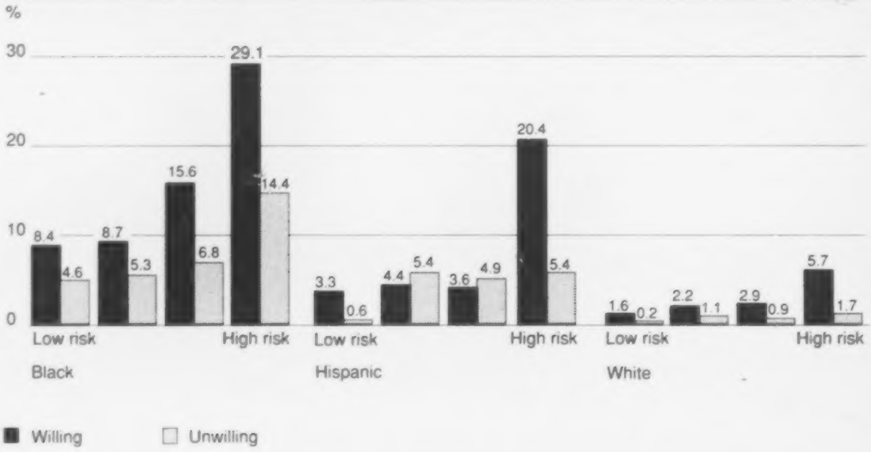
*A detailed report confirms the statistical significance of similar results obtained by multivariate analysis (see reference 13).

Figure 2. Percentage of female high school sophomores surveyed in 1980 who were single mothers by 1982, by background risk of nonmarital childbearing and previous willingness to consider it, according to race or ethnicity



Note: The two lowest levels of risk and the two highest levels are combined here to ensure sufficient sample sizes at the extremes.

Willingness to Consider Childbearing

Contemporary social norms pertaining to nonmarital childbearing are in a state of flux, and individuals vary in their willingness to consider having a child before they marry, as is shown in Table 1. In the High School and Beyond 1980 baseline survey, each sophomore was asked, "Would you consider having a child if you weren't married?" Respondents could select one of three choices: yes or maybe (grouped together hereafter as "willing") or no (considered as "unwilling"). We interpret a teenager's willingness or unwillingness in response to this question to be an indirect reflection of how fully she has internalized normative restraints on nonmarital childbearing.

Overall, 41 percent of black respondents, 29 percent of Hispanics and 23 percent of non-Hispanic whites were classified as willing to consider nonmarital childbearing. In addition, 14 percent of blacks, eight percent of Hispanics and four percent of whites did not respond to the question; when the nonrespondents are eliminated, we find that 48 percent of blacks, 32 percent of Hispanics and 24 percent of whites claimed they were or might be willing to bear a child outside of marriage (not shown).

Before making any meaningful comparisons between those willing and those unwilling to be unmarried mothers, we must take into account certain relatively permanent differences in the young women's backgrounds, which might obscure the other influences to be examined here. For our purposes, the most important background variables measured in the High School and Beyond study are race or ethnicity, socioeconomic status, academic ability and parental family structure (i.e., residence in a female-headed family). Using a parenthood-risk scale that incorporates the last three of these variables,[13] we stratified the respondents (separately by race or ethnicity) into six parenthood-risk groups.* By definition, the groups at higher risk within each racial or ethnic category were composed of academically less able individuals from single-parent families of comparatively low socioeconomic status; those at lower risk generally were composed of individuals with other types of personal and family characteristics.† These distinctions are as finely detailed as can be supported, given the size of the race-specific samples used in the High School and Beyond study.

Figure 1 shows that the willingness to consider nonmarital childbearing was more common among young women at higher risk (as indicated by the parenthood-risk scale) than among the others. For example, 69 percent of the young black women who were at highest risk of adolescent parenthood said that they were willing to consider nonmarital childbearing, compared with 47 percent of those at lowest risk of teenage parenthood. Likewise, among Hispanic respondents, the respective proportions were 52 percent and 30 percent, and among whites, they were 60 percent and 22 percent. Apparently, norms proscribing single childbearing are weaker among respondents whose backgrounds alone foreshadow an actual elevated risk of nonmarital childbearing. Note, too, that at every level of risk, young black women were more willing to consider having a child while single than were white or Hispanic respondents.

Were the respondents who expressed a willingness to consider nonmarital childbearing actually more prone to *become* single mothers thereafter? The data in Figure 2 show that they were, with the possible exception of Hispanics, for whom the pattern was mixed. Over the two years following the baseline survey, willing respondents generally registered much higher rates of nonmarital childbearing than did their unwilling counterparts at each level of risk. For example, in the group at highest risk, levels of childbearing were at least twice as high among those who had said they were willing than among the unwilling—29 percent compared with 14 percent among blacks, 20 percent compared with five percent among Hispanics and six percent vs. two percent among whites. Even among young black women at the second

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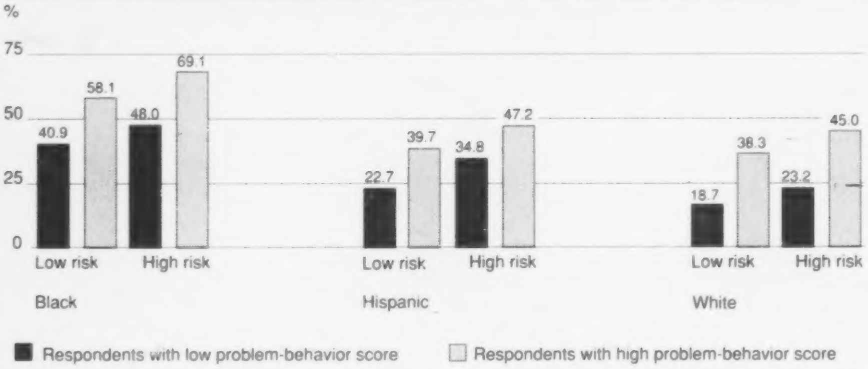
*The parenthood-risk scale's three components were combined into an integer-valued risk scale ranging from −2 for respondents in both the upper socioeconomic and the upper ability quartiles who live in a two-parent family to +3 for those in both the lower socioeconomic and the lower ability quartiles who are black or Hispanic and live in a female-headed or other type of family. Exact operational definitions of socioeconomic status and academic ability are available elsewhere (see reference 13, Appendix B).

†We observed that young women stratified in this way differed markedly in their rates of single parenthood. Rates were as high as 24 percent (among high-risk blacks) and as low as 0.1 percent (among low-risk whites).

Figure 3. Percentage of female high school sophomores willing to consider nonmarital childbearing, by degree of self-reported problem behavior and background risk of nonmarital childbearing, according to race or ethnicity



highest level of risk, 16 percent of initially willing respondents had become single mothers two years later, compared with only seven percent of those who had said they were unwilling; among whites, the comparable rates were three percent and one percent.

These data imply that for a segment of the population that refuses to consider out-of-wedlock childbearing, single parenthood is not simply an "accident," but rather is an avoidable outcome. Compared with young women who would consider having a child outside marriage, those who reject the idea appear better able to avoid that outcome, even when their backgrounds alone strongly predispose them toward it. Exactly how these teenagers avoid single parenthood cannot be determined from the High School and Beyond data, however. They may choose to be less sexually active or to initiate sexual activity later, they may be more diligent in their contraceptive use, or they may have more favorable attitudes toward marriage as a means of resolving a premarital pregnancy.

Problem Behavior and Opportunity Costs

If willingness, as it is measured here, reflects the weakness of normative restraints on single childbearing, how can its expression in certain individuals be accounted for? To do so, we introduce two complementary theoretical perspectives. The first, derived from psychology, calls attention to the propensity of certain individuals to engage in "problem behavior." This theory postulates that certain people exhibit a constellation of alienation, rebelliousness and various types of risk-taking behavior, and that in these individuals, specific kinds of problem behavior—alcohol and drug use, misbehavior in school, criminal behavior, aggression, lying and stealing—"go together."

A large body of psychological literature amplifies and supports the notion that risk-taking and problem behavior are related.[14] We postulate here that problem-behavior theory may pertain as well to the social control of reproduction, in that the willingness of some young women to consider nonmarital childbearing is one instance of a broader resistance to social norms and a tendency toward nonconforming behavior.

A second perspective, drawn from economics, emphasizes the costs and benefits of single parenthood as they might appear to a teenager. What does she stand to lose (or gain) by forming a single-parent family—that is, what opportunity costs would she incur?[15] This perspective implies that seemingly irrational behavior (becoming a mother without first marrying) may nonetheless be reasonable and logical within the teenager's own perceptions. Thus, a pregnant adolescent who shuns abortion or marriage and goes on to bear a child out of wedlock discerns both potential costs and potential benefits and weighs them with reference to how she values the possible alternatives.

If some young women's claims that they would be willing to bear a child outside marriage form part of a broader range of nonconforming or rebellious behavior associated with their struggle to separate themselves from their parents, then the same individuals should engage in other problem behavior as well. To test this hypothesis, we examined three types of problem behavior as reported by the respondents: disciplinary problems in school, class-cutting and absenteeism. For simplicity, the three have been combined into a simple scale, in which respondents are assigned to one of three possible levels of problem behavior (high, moderate and low).*

As can be seen in Table 2, proportionally more of the respondents ranking higher on this scale were willing to consider nonmarital childbearing. For example, 41 percent of whites with a high problem-behavior score expressed such willingness, compared with only 18 percent of those who scored low; among black respondents, the comparable proportions are 64 percent and 40 percent.

The marked difference between those with high problem-behavior scores and those with low scores persists when background differences are controlled for by means of the parenthood-risk scale, as can be seen in Figure 3. (Because sample sizes were small at the extremes, we have combined the six levels of the parenthood-risk scale into only two levels—high and low.) Among whites on the low half of the risk scale, 38 percent who scored high on problem behavior were willing to consider nonmarital childbearing, compared with 19 percent who scored low; among blacks, the comparable proportions are 58 percent and 41 percent; and among Hispanics they are 40 percent and 23 percent. A similar pattern can be seen among high-risk women.

Thus, those individuals who reported cutting classes, being frequently absent from school and having disciplinary problems were more likely to claim a willingness to become single mothers, and their backgrounds alone do not account for much of this association. However, interpreting these findings is difficult: It may be that individuals manifesting the problem-

Table 2. Percentage of female high school sophomores who were willing to consider nonmarital childbearing, by their ranking on a problem- behavior scale, according to race or ethnicity

Ranking	Race/ethnicity		
	Black (N=1,759)	Hispanic (N=2,242)	White (N=9,060)
High	63.9	42.6	41.3
Moderate	48.5	31.4	24.4
Low	40.3	24.0	17.5

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*For the problem-behavior scale, we defined three dummy variables that indicated specific self-reported behavior problems: whether the respondent had disciplinary problems in school during the last year; whether she cut classes "every once in a while"; and whether she was frequently absent from school for reasons other than illness. Few respondents reported all three types of behavior; accordingly, we separated respondents into groups reporting two or more types (high), exactly one type (moderate) or none (low).

behavior pattern resist social rules about nonmarital childbearing, or they may simply give nonconforming responses to survey questions as part of that pattern.

Either way, though, as was seen in Figure 2, the response does in fact predict subsequent behavior. Thus, our findings affirm, at least theoretically, the relevance of this psychologically based theory and support its inclusion within any general interpretation of early premarital childbearing. Practically, it links the would-be single teenage mother to a readily measurable problem-behavior pattern familiar to psychologists.

If problem-behavior theory accounts for the reported willingness of some respondents to have a nonmarital birth, then economic theory furnishes a complementary perspective, positing that a teenager's "irrational" willingness to consider nonmarital childbearing might make perfectly good sense when framed in terms of anticipated costs and benefits. Whatever the possible benefits, the losses surely include delaying or even giving up on continued schooling. A corollary of this view is that individuals who stand to lose the most as single mothers should be the ones least inclined to consider doing so.

To test this hypothesis, we use several proxy measures of potential opportunity costs available from the High School and Beyond data. These measures, which reflect what a young woman would forgo educationally were she to become a single mother, pertain to her stated educational plans—whether or not she expects to go to college, and what level of education she expects to attain. Opportunity costs would be higher for, say, someone who aspires to be a college graduate than for someone who plans only to finish high school. The two variables formed a single, three-level opportunity-costs scale.*

Figure 4. Percentage of female high school sophomores willing to consider nonmarital childbearing, by implied opportunity costs of doing so and by background risk of nonmarital childbearing, according to race or ethnicity

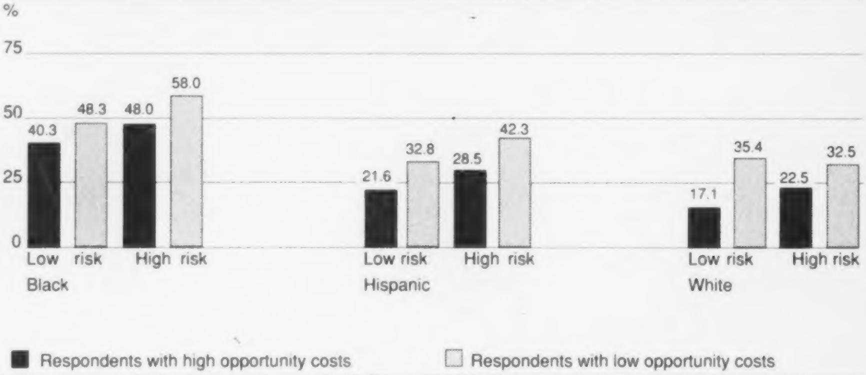

Table 3. Percentage of female high school sophomores willing to consider nonmarital childbearing, by ranking of opportunity costs associated with a pregnancy, according to race or ethnicity

Opportunity costs	Race/ethnicity		
	Black (N=1,759)	Hispanic (N=2,242)	White (N=9,060)
Low	53.9	37.7	33.6
Moderate	50.5	34.0	23.3
High	43.6	23.6	18.1

Table 4. Percentage of female high school sophomores willing to consider nonmarital childbearing, by frequency of instances of depression in previous month, according to race or ethnicity

Frequency	Race/ethnicity		
	Black (N=1,759)	Hispanic (N=2,242)	White (N=9,060)
> 1	35.6	35.1	30.3
1	48.1	29.6	21.1
None	39.6	18.6	16.7

Teenagers differ in their individual goals: Some expect to complete college, others do not want to bother finishing high school. Once we account for these differences, a recognizable pattern appears that is familiar to economists: The young women who have the most to lose by becoming single mothers are the least likely to say that they would consider having a nonmarital birth (see Table 3). Among whites, for example, 34 percent of those ranking lowest on the opportunity-costs scale claimed a willingness for nonmarital childbearing, compared with only 18 percent of those ranking highest. A similar pattern can be seen among blacks (54 percent compared with 44 percent) and Hispanics (38 percent compared with 24 percent).

When background differences are controlled for by means of the parenthood-risk scale, the pattern persists (see Figure 4). Among high-risk black respondents, for example, only 48 percent of those with high opportunity costs were willing to consider nonmarital childbearing, compared with 58 percent of those whose opportunity costs were low. This differential was greatest for low-risk whites—17 percent compared with 35 percent. Although the differentials were in most cases relatively small, their consistency across all groups in Figure 4 is noteworthy.

As a further, although oblique, test of the opportunity-costs perspective, we examined a measure of depression gathered in High School and Beyond through the respondents' reports. They were asked, "During the past month, have you felt so sad, or had so many problems, that you wondered if anything was worthwhile?" Respondents could chose "yes, more than once," "yes, once," or "no." (Although self-reports† of depression cannot substitute for ratings or diagnoses by trained clinicians, their research utility is established in the psychological and psychiatric literature.[16]) Individuals who cited several instances of depression in the previous month may tend to perceive opportunities—and hence opportunity costs—differently from the others. To those who show evidence of depression, opportunity costs may flatten out into indifference about their own future.

Among Hispanics and non-Hispanic whites, respondents who reported being depressed were more likely to claim that they would consider nonmarital childbearing than were their nondepressed peers (see Table 4). For example, young white respondents who had felt depressed more than once in the preceding month were almost twice as likely to have been willing to consider single parenthood as were young women who reported no such instances of depression (30 percent compared with 17 percent). Among blacks, however, the pattern was mixed: Those who reported several instances of depression were

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*The opportunity-costs scale was composed of an indicator of whether the respondent expected to pursue two or more years of college education and an indicator of whether the respondent planned "to go to college at some time in the future." The scale is simply the sum of these, which ranges from zero (low opportunity-costs) to two (high opportunity-costs).

†Self-reports are imperfectly correlated with clinically diagnosed depression, but that only reduces the statistical power of the measure we use here. The key point is that the measure of depression has face validity; it is difficult to imagine that this item would yield false positives.

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slightly less likely to say they would consider nonmarital childbearing than were the other young black women, whereas those who had felt this way once in the previous month were the most likely to consider nonmarital childbearing.

Conclusions

The responses of a nationally representative sample of high school sophomore women to the question "Would you consider having a child if you weren't married?" are indicative, we believe, of how completely (or incompletely) each has internalized normative restraints on nonmarital childbearing. According to our analysis, those restraints do curtail subsequent single childbearing: Among young women whose background put them at a comparable level of risk of nonmarital childbearing, those who claimed that they would consider becoming a single mother were more likely to have had a nonmarital birth than were those who would not consider doing so.

The willingness to consider single motherhood (expressed by half of the blacks who gave a response and one-quarter of the whites in the overall High School and Beyond study) can be traced to three sources. First, for a small, well-defined segment who rank high in problem behavior (19 percent of our sample), this willingness is part of a recognizable pattern of nonconforming behavior. In addition, it is associated with the educational opportunity costs of becoming a single mother. Finally, among whites and Hispanics, it is linked to self-reported depression (which may be a proxy for low self-esteem).

These findings underscore the relevance of both psychological and economic perspectives for fathoming the social restraints on nonmarital childbearing. At the stage of adolescence examined here, a young woman's receptivity to single parenthood may well be manifested in different ways in different individuals—as rebelliousness in some, as a kind of calculated (or miscalculated) thinking in others, or as another's apparently bleak outlook for her prospects. From a practical standpoint, our results pinpoint three promising factors for constructing profiles to spot prospective single mothers.

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Cover design: Bob Ciano.

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Special Report

The Return of the IUD

By Michael Klitsch

In October 1987, The Population Council announced that it had licensed a New Jersey pharmaceutical company to produce and market its copper-bearing intrauterine device (IUD), the Copper T (TCu) 380A. This IUD, probably the most effective yet designed, was approved by the U.S. Food and Drug Administration (FDA) in 1984, but it has never been manufactured or distributed in the United States. GynoPharma, the new distributor, will deal directly with doctors and clinics rather than through surgical supply houses and will pay a great deal of attention to promoting restrictive criteria intended to ensure that the TCU 380A is used only by women who are at low risk of contracting pelvic inflammatory disease (PID).[1] Although the device is expected to be available by mid-April, 1988, its price has not yet been released.

Background

Over the course of about five months in late 1985 and early 1986, Ortho Pharmaceutical Corporation ceased manufacturing their nonmedicated IUD, the Lippes Loop, and G. D. Searle and Company stopped U.S. sales of their copper-bearing IUDs, the TCu 200 and the Copper-7 (Cu-7). Both companies cited reasons that were business-related, not safety-related: In recent years, the Lippes Loop had lost ground in sales to the copper-bearing IUDs; in addition, since the late 1970s, the number of lawsuits filed against Searle by women alleging that they had been injured by IUD use had mushroomed. Although Searle successfully defended 14 of 16 suits that went to trial and managed to have hundreds more either dismissed or settled out of court, its legal costs have been high, and the company still faces more than 470 lawsuits. As a result, Searle was having difficulty obtaining liability insurance coverage for their IUDs.[2]

Thus, Ortho and Searle elected to remove their IUDs from the U.S. market, even though the FDA still considered them safe and effective methods of birth control. Since the three devices together represented nearly the entire IUD market in the United States, their removal left the little-used progestin-releasing Progestasert as the only IUD remaining on sale in this country.

The withdrawal of the IUDs has had a wide-ranging impact: Reports have appeared that some U.S. women have been traveling north to Canada to have IUDs inserted, because the devices remain available there;[3] and clinicians in the developing world have been concerned that the companies' removal of the IUDs from the U.S. market would signal that the devices were unsafe or that they would shortly become unavailable around the world.

In addition, research indicated that almost 1.5 million U.S. women using IUDs—nearly 10 percent of all U.S. contraceptive users—would eventually be affected, and predicted that anywhere from 31,000 to 182,000 additional unintended pregnancies would occur in the year following the IUDs' withdrawal, depending on how many women had their IUDs removed and whether they switched to methods that were more or less effective than the IUD.[4]

The TCu 380A

After the loss of the Lippes Loop, the TCu 200 and the Cu-7, attention was turned to other IUDs as yet unlicensed in the United States. One such IUD, the TCu 380A, was developed by The Population Council in 1972, and has been used by many women around the world since 1982. Although this device was approved by the FDA in 1984, The Population Council was unable to license it for U.S. manufacture because Searle held the U.S. patent on the use of copper in IUDs. However, with Searle's patent due to expire early in 1988, the Council was able to license the TCu 380A for manufacture and distribution in the United States.

The TCu 380A represents an improvement over the TCu 200, in part because it carries 380 mm^2 of copper instead of 200 mm^2. The copper on the TCu 380A comes both around the stem and fitted (as sleeves) to the IUD's crossbar; as a result, the device delivers more copper ions to the uterine fundus, enhancing the contraceptive effect. A number of studies have shown the four-year pregnancy rate associated with the TCu 380A to be less than two per 100 users.[5]

The IUD's Return

In announcing the selection of GynoPharma to introduce the TCu 380A to the U.S. market, George Zeidenstein, president of The Population Council, cited the "conservative and responsible marketing approach" that the company is expected to follow.[6] GynoPharma's chairman, Roderick L. Mackenzie, emphasized that their approach will primarily be educational. The company will give every prospective provider detailed guidelines about who should use the TCu 380A, he explained: For example, the device will be recommended only for women who have had at least one child and who are in a stable, monogamous relationship. All physicians or clinics providing it will be required to give the company written confirmation that they will offer the IUD only to women who meet these criteria. Mackenzie added that "we are going to make it very clear to both physicians and patients just exactly who should *not* use the Copper T."[7] And to ensure tight control over distribution, GynoPharma will only provide the TCu 380A—to be known as ParaGard—directly to physicians and clinics; in the past, IUDs were sold through surgical supply houses.

The reaction to the news among family planning organizations and providers was, on the whole, very positive. Noting with

(Continued on page 40)

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Comment

Whatever Happened to the Contraceptive Revolution?

By Richard Lincoln and Lisa Kaeser

In 1951, the first progestogens—norethindrone* and norethynodrel—were successfully synthesized.[1] Limited human tests of these synthetic hormones as oral contraceptives were initiated in Massachusetts in 1954. Since laws restricting contraceptive use were still on the books in that state, large-scale clinical testing, which started two years later, was moved to Puerto Rico.[2] Marketing of oral contraceptives in the United States and abroad began in 1960; by 1962, nearly two million couples in the United States alone were using the pill.[3] Because this contraceptive method could be employed independently of sexual intercourse and, when used consistently, offered nearly 100 percent protection from pregnancy, its development was widely and appropriately hailed as the beginning of a contraceptive revolution.

Before 1960, the National Institutes of Health, the largest single source of funding for biomedical research, were prohibited from supporting research on birth control, and the World Health Organization, the major international organization dealing with biomedical research, consistently refused to have anything to do with contraception.[4] Only a pittance had been invested in contraceptive development prior to the late 1960s.[5] But the development of the pill, and the rehabilitation a few years later of the IUD, coincided with rising concern that rapid postwar population growth in Third World countries was paralyzing economic and social development, threatening the environment and even endangering world peace. Spurred by such concerns, governments began to provide direct support for population research, including contraceptive development, and government-subsidized nonprofit institutions were established to investigate contraceptive methods that were perceived to be needed in developing countries but were thought to be insufficiently profitable to attract the interest of pharmaceutical companies.[6] However, the pharmaceutical industry, encouraged by the success of the oral contraceptive, shared the new enthusiasm; by the early 1970s, some 13 companies—eight of them American†—were active in the development of contraceptive products.[7] The contraceptive revolution, ushered in by the pill, was thought to be just beginning, and it was widely predicted that a host of new methods would soon be available—a pregnancy vaccine, a pill for men, a menses inducer and a reversible sterilant for men and women.

These predictions have yet to be realized. Indeed, if in the 1960s we saw the birth of a contraceptive revolution, then in the 1980s we are witnessing the failure of that revolution and the reversal of many of its hard-won gains. In the United States, where the pill and the modern IUD were first developed, contraceptive methods are disappearing faster than new ones can be introduced. The Food and Drug Administration (FDA) has refused to approve injectable contraceptives for use in this country. The major manufacturers of IUDs have withdrawn the Copper T, the Copper 7 and the Lippes Loop from the U.S. market, leaving only the medicated Progestasert and the promise of a new copper device—the Copper T 380A—scheduled for distribution later this year (albeit at a high price and under limited circumstances).[8] Spermicides and the methods that rely on them—foams, jellies, creams, suppositories, sponges and diaphragms—could be endangered if juries make more awards against spermicide manufacturers like the recent $4.7 million judgment against the Ortho Pharmaceutical Corporation.[9]

Some methods that are available in other countries—injectables, steroidal implants, postcoital contraceptives, devices for reversible sterilization and alternative formulations of oral contraceptives (including new steroids such as desorgestrol that are believed to have fewer adverse effects on the cardiovascular system[10])—are unavailable to most Americans. RU 486, the antiprogestational drug that has the potential to become a postcoital contraceptive,[11] is expected to be marketed as an early abortifacient in France and China this year,[12] but is not likely even to be brought before the FDA for approval.[13] Its potential as a once-a-month menstrual regulator has faded,[14] and little work has been done on developing analogs that would be suitable for this purpose. Clinical research on new contraceptive methods is virtually at a standstill in this country, and only one American pharmaceutical company (Ortho) and two others outside the United States (Organon and Schering) remain active in contraceptive research.[15]

What has happened to turn the contraceptive boom into a bust?

Some Problems

A great deal of attention has been focused lately on the issue of product liability (discussed later in this article). But long before the liability problem turned into a liability crisis, contraceptive development was in serious trouble for a number of reasons. Among them were insufficient funding; a diminution of the crisis atmosphere surrounding population growth; lack of scientific interest; spillover from the abortion controversy; opposition from consumer and feminist groups; politicized short-range planning; and cumbersome FDA requirements.

- *Funding problems.* In real dollars, worldwide spending for contraceptive develop-

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*Called norethisterone in Europe.

†The U.S. companies were Lily, Merck, Ortho, Parke-Davis, Searle, Syntex, Upjohn and Wyeth.

ment by both governments and the pharmaceutical industry has declined by nearly one-quarter since its peak in 1972 (see Figure 1). In 1983, the most recent year for which there are data, only about $57 million was being spent worldwide for 384 research projects involving some 70 variations of potential contraceptives.[16] (About $12 million devoted to basic research directed toward finding specific new contraceptives is not included in this total.) Thus, expenditures amounted to less than $1 million per method—or about $150,000 per project. The cost to a pharmaceutical company of bringing a new method from the laboratory bench to the marketplace has been estimated at $24–$70 million,[17] and one recent estimate cited a figure of $125 million for the average new drug.[18]

The results of such a low level of funding are many. For one, the great bulk of the money available is not being spent in search of a breakthrough but on modifications of, or new means of delivering, methods that are already in use. Many, if not most, of the reversible methods that have been developed in the last three decades and that are currently in advanced clinical trials grew from the successful synthesis of progestogens 37 years ago. These range from NORPLANT® capsules to vaginal rings and injectable steroids like Depo-Provera.

Funding constraints not only circumscribe the kinds of contraceptive research being conducted but also slow down the pace of research by limiting the number of formulations of a method that can be investigated simultaneously. Had more money been available early on, researchers could have cut many years from the development of NORPLANT by working on various combinations of progestogens and silastics simultaneously. Instead, it took 16 years to get NORPLANT marketed in any country. The method still has not been submitted to the FDA for approval and that, too, is related to limited funds. The Population Council, which developed NORPLANT, did not initially plan to seek FDA approval for its use in the United States because of the expensive and time-consuming animal toxicology and teratology studies that were required. However, without FDA registration, the Agency for International Development cannot offer NORPLANT to developing countries that want it. Since the FDA's rules have been modified to allow new formulations of existing steroids to be approved without the expensive studies, the Council has decided to seek FDA approval for NORPLANT after all. But the process has taken longer than it would have if they had planned to do so from the beginning.[19]

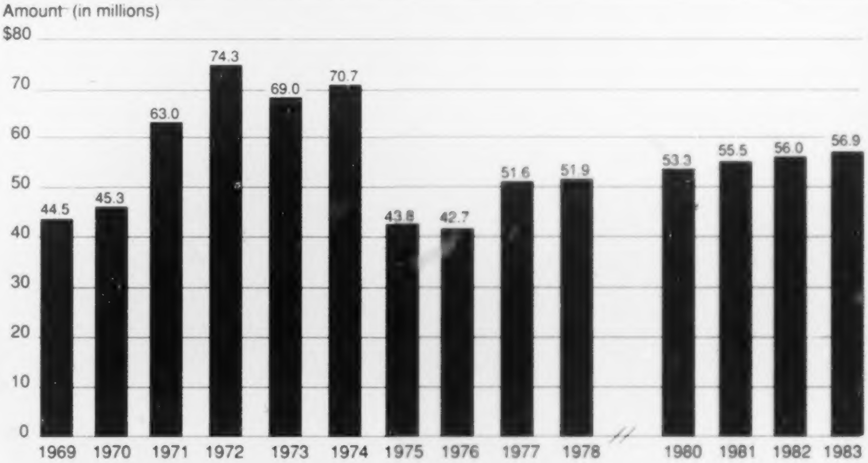
•*Diminishing population growth.* The interest of governments in contraceptive research has been closely tied to concerns about rapid population growth, but developed countries are not as alarmed about the population crisis as they were in the early 1970s. Contraceptive development is not generally seen by developed countries as essential to their own health needs, in light of the low birthrates and low infant and maternal mortality rates that now prevail in these countries. Furthermore, progress in controlling population growth in many developing countries, as well as budget deficits in the United States and belt-tightening by other governments, has tended to reduce the commitment of developed countries to foreign aid.

•*Shortage of scientists.* The decline in funding for contraceptive development and reproductive research has tended to discourage young scientists from choosing careers in these areas, as has the field's loss of glamour since the early 1970s, when interest in the population problem was at its height. Today, according to directors of agencies engaged in contraceptive development, relatively few doctorates are being sought in reproductive biology. The reservoir of sources for new ideas, therefore, is in danger of drying up. This shortage of young Ph.D.s in reproductive biology could be partially compensated for by the extraordinary progress being made in such fields as genetic engineering; the potential feedback from such research could, for example, result in some very exciting progress in pregnancy vaccine development, if the funds are available to capitalize on the progress in genetic engineering. But if the level of funding for basic reproductive research continues to decline, the shortage of interested scientists could retard even further the course of contraceptive development.

•*The abortion controversy.* The controversy over abortion has chilled contraceptive research, particularly research on methods that work after fertilization, such as vaccines and antiprogestational agents. The Agency for International Development is prohibited by law,[20] and the National Institutes of Health are barred by policy,[21] from funding research into any method that may be used to induce abortion or to improve abortion techniques. The Upjohn Company, once a major actor in the field of contraceptive development, has pulled out of reproductive research altogether, reportedly in part because of a boycott of its other products by antiabortion groups.[22] Were the pill or the IUD in an early stage of research today, such opposition might well prevent them from becoming marketable or from even being developed at all.

•*Feminist and consumer opposition.* Opposition by some feminist and consumer groups to both existing and new methods because of their concerns about product safety has also discouraged pharmaceutical companies from proceeding with the development of contraceptives. Upjohn, for example, faced active opposition from such groups to its injectable contraceptive, Depo-Provera. Consequently, the FDA refused to approve Depo in the United States, despite endorsement of it by the World Health Organization, the International

Figure 1. Worldwide funding for contraceptive development, 1969–1983 (in constant 1983 dollars)



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Planned Parenthood Federation's Medical Advisory Panel, the United Kingdom's Department of Health and Social Security and the medical safety groups of some 40 other governments.[23] The FDA's refusal has been widely perceived as a political response to domestic opposition, and as possibly prophetic of what would happen if other controversial methods were to be presented for approval.

- *No long-term commitment.* Short-term funding commitments restrict the kinds of contraceptive research that are being done. Even if more money were available to speed up the development process, a number of years are needed to take a method from the laboratory to the marketplace. However, government grants to nonprofit agencies and contracts with pharmaceutical companies—accounting for more than half of the total amount invested in contraceptive research[24]—are typically short-term and highly politicized. Research breakthroughs require major investments in personnel and equipment—investments that both nonprofit and profit-making organizations are reluctant to make if there is no guarantee that funding will be available to carry the project through to completion. Thus, research organizations tend to invest most of their effort in new delivery systems of already tested ingredients that promise results in a relatively short time.
- *Complex FDA requirements.* Complex, expensive and time-consuming premarketing requirements by the FDA delay the availability of many methods to Americans until long after residents of other developed countries have benefited from them. The FDA's premarketing requirements also affect international availability of American-produced contraceptives, since manufacturers and government agencies cannot export methods to developing countries unless an application to market in the United States has been submitted to the FDA. The extensive requirements for premarket testing discourage pharmaceutical companies, since the longer the time spent in research and development, the shorter the time remaining under which the product is protected by a patent. Furthermore, almost all of the serious health problems that have been associated with contraceptives (such as the cardiovascular problems caused by the pill) could not be detected through premarket testing; because of their relative rarity, such problems could only be found after hundreds of thousands, if not millions, of women had used a given contraceptive. The World Health Organization has suggested that the consumer's health may be better protected in more timely fashion by placing increased emphasis on postmarketing surveillance of new contraceptives and less emphasis on prolonged animal testing that provides little additional guidance as to the probable effect of the agent on human beings.[25]

The Liability Issue

The current liability crisis is the proverbial last straw. It is almost impossible for pharmaceutical companies and nonprofit research organizations to protect themselves against liability for injury, even if potential users are warned of all the known risks from utilizing the product. The concept of liability requires that an injured party be compensated, unless the consumer used the product despite full knowledge that it was contraindicated for him or her. If negligence or fraud is shown, punitive damages may also be awarded. When the FDA approves a drug or device, it does not mean that the product is 100 percent effective or that it poses no risk, as demonstrated by the laundry list of possible risks to health and even life contained in the FDA-approved labeling for the pill. FDA approval merely means that the benefits of the drug or device for most users under most circumstances outweigh the risks.

Conventional insurance policies purchased from outside firms to cover marketed contraceptives have become impossible to obtain or are prohibitive in cost. The disastrous experience with the Dalkon Shield—an IUD that increased the risk of pelvic infection and was marketed before FDA approval of medical devices was required—made insurance companies shun coverage of any IUD, and perhaps shy away from other contraceptives as well.

Some methods have a large enough profit margin that they can be self-insured; an example is the pill. Since it costs a few cents to manufacture, sells for about $14 a cycle and requires repeated purchases, pharmaceutical companies can reserve some of the profits to cover the cost of potential lawsuits. However, long-acting methods like the IUD, implants and injectables make much smaller profits, and cannot be self-insured so easily. Consequently, implants and injectables may never be marketed in the United States, and most IUDs have been withdrawn from the market. Spermicides are also a low-profit item that could easily be endangered by liability suits. Such a suit was brought by a woman who claimed that her child was born with severe birth defects because of the spermicide she had been using at the time of conception.[26] A $4.7 million award was made even though most scientific studies of spermicides have found no teratogenic effect from their use during pregnancy.[27] Moreover, the principal study that suggested such an effect has been repudiated by two of the investigators involved.[28]

The liability problem has also paralyzed clinical research on new contraceptive methods in this country, since outside insurance for testing new contraceptives on human subjects is unobtainable at almost any price. In addition, methods still in the research stage generate no profits from which they can be self-insured. Pharmaceutical companies can, if they wish, self-insure some methods from profits made on other products. But universities and nonprofit research and development agencies (such as The Population Council and Family Health International), which in the past have been responsible for more than half of all contraceptive development and some of the more innovative research in this field,[29] have been particularly hard-hit because they have no profits from which they can compensate subjects who may be injured.

In some respects, the liability problem is a cyclical one. When interest rates are high, insurance companies are eager to write policies at a relatively low cost, because they can invest the premiums at 15 to 20 percent and make a tidy profit beyond what they pay out in claims. Even relatively high-risk products can be insured in such an atmosphere. But when interest rates decline, companies are much more cautious about what they will insure, and they want higher premiums.

The liability crisis is not unique to contraceptives. It first gained notoriety in 1985 and 1986, when the police, fire and parks departments of many towns found their liability insurance policies were not being renewed. The resulting chaos led to the introduction of some 10,000 bills in state legislatures during 1986, and 39 states passed legislation reforming their insurance and product liability laws. These reforms included capping noneconomic damages; limiting "joint-and-several liability," whereby parties only marginally liable can be held fully responsible for damages if the assets of the main party to the suit are insufficient to cover the award; limiting the contingency fees of attorneys; restricting the right of insurance companies to cancel or refuse to renew policies; and protecting states and municipalities from damage suits unless gross negligence is proved.[30] Another 250 bills were introduced in 1987, and 22 states passed laws. In general, the laws prevented suits involving risks that were unknown at the time of the injury, limited the amount of punitive damages that can be awarded and required that different charges involving one injury be combined in a single suit.[31]

Some federal laws also were passed in 1986 that may be of help to manufacturers of contraceptives. One law made it easier for businesses, professionals and other groups to form cooperatives to purchase general liability and malpractice insurance.[32] An omnibus health law allowed companies, under limited circumstances, to export drugs that have not been approved by the FDA to countries that have approved their use.[33] This law also established the structure for a national compensation plan for vaccine injuries that is to be financed by a surcharge on all vaccines; this plan has been suggested as a model for a contraceptive compensation mechanism.

Most attention at the federal level, however, was concentrated on a bill that would have significantly altered the tort system.[34] Among other things, it would have provided for a system of expedited out-of-court settlements, capped awards for noneconomic damages and exempted products that are FDA-approved from punitive damages, thereby easing the burden of liability for contraceptives as well as for other products. The bill was opposed by lawyers, consumer groups and others who felt that the emphasis should be placed on regulating the insurance companies. Because of the controversy, the bill was never considered by the full Senate.

Future Prospects

More and more, lawmakers seem convinced that reform of insurance company practices represents a better, or at least a more feasible, solution to the liability problem than general tort reform, and that is where the emphasis is apparently being placed during this session of Congress. The insurance industry's recent financial recovery has undercut its argument that increasingly huge damage judgments were the primary reason it was restricting its provision of liability insurance. In addition, insurance companies in states that have adopted tort reform legislation do not seem to have responded by lowering their rates or expanding their coverage of high-risk areas.[35] Hearings have already been held in both houses of Congress on a bill designed to get rid of the insurance companies' antitrust exemption,[36] long provided for under the McCarran-Ferguson Act.

The only product liability legislation with a chance of passage in 1988 is a House bill that would amend the Consumer Product Safety Act to establish uniform minimum federal standards.[37] The bill includes a provision that would release manufacturers and sellers from liability if they can prove that the technology to discover or eliminate the defect or danger did not exist at the time of the injury. Another provision would prohibit punitive damages if the drug or device involved had received premarket approval from the FDA or if the product labeling had received such approval. The bill also encourages the use of mediation to reduce delays in settling damage suits.

Whatever the fate of legislation on product liability or insurance regulation, congressional action that would single out contraceptives or contraceptive development for special treatment—in the same vein, for example, as the federal compensation plan for vaccine injuries—is highly unlikely, especially while the U.S. birthrate remains below replacement level. Even though that low birthrate is achieved through large-scale recourse to abortion and the use of sterilization at younger and younger ages, contraceptives are still too controversial for many legislators.

In any case, if liability insurance were more easily available and affordable, more small venture capital firms might be tempted into the field of contraceptive development or, at the very least, might be willing to market products developed by nonprofit groups. One such company, GynoPharma, has already been organized to market later this year the Copper T 380A, a highly effective IUD developed by The Population Council.[38] However, the cost of the device is expected to be much higher than that of previous IUDs, because the company must accumulate a pool of funds as escrow for possible damage suits. In addition, the company is calling on physicians to provide the device only to women older than 25 who have had at least one child and are involved in a monogamous relationship; obviously, a voluminous informed consent form will also be required.

If reasonably priced liability insurance were readily available, nonprofit agencies and academic institutions might be encouraged to resume the clinical testing of contraceptives in the United States. At present, one reason such nonprofit research groups are reluctant to test potentially useful contraceptives is that the pharmaceutical companies that produce and will market those products (if test results are favorable) are reluctant to enter into "hold-harmless" agreements that would exempt the nonprofits from liability.

It is highly improbable that solving the liability crisis would bring the large pharmaceutical firms back into the contraceptive business. The numerous other problems that were discussed previously also need to be addressed if we are to see a revival of the contraceptive revolution in this country.

Significant changes in the FDA's requirements process that would hasten the approval of contraceptives are not on the horizon. There has been no action on proposals that some of the elaborate premarketing animal toxicity studies be exchanged for new postmarketing standards; such an exchange could speed the development process, provide incentives for pharmaceutical companies to invest more in research and development and probably provide better protection for the consumer, too. Indeed, if Rep. Henry Waxman's (D.-Calif.) proposals to strengthen some of the standards regulating medical devices are passed,[39] the regulatory process for approval of new contraceptive devices may take even longer than it does now.

There is a move to include $10 million in the budget of FY 1988 to fund a Contraceptive Development Initiative that would be incorporated in the bill reauthorizing Title X of the Public Health Service Act (the federal legislation that finances family planning services). This initiative was first proposed in 1984, and for the past two years, Rep. John Porter (R.-Ill.) has succeeded in getting language supportive of the initiative into a House Appropriations Committee report. No money, however, has ever been earmarked for the initiative. The Title X bill has been approved by the Senate Labor and Human Resources Committee,[40] but was introduced in the House of Representatives only in December.[41] Although the Contraceptive Development Initiative is not believed to be especially controversial, it must be remembered that the family planning legislation itself has not been reauthorized for three years because of disagreements over controversial amendments on abortion referral and whether parental consent ought to be required for services to teenagers.

Conclusion

The recent experience with IUDs shows how easy it is to lose an existing method. Spermicides may be next. The pill, used by some 9–10 million American couples, looks firmly entrenched. Yet "pill scares" seem as enduring as the method: Two of the most recent link oral contraceptives with increased vulnerability to AIDS[42] and with breast cancer in women who took the pill prior to a first birth.[43] Such scares could always endanger the availability of this product.

The widespread concern about the AIDS epidemic represents both an opportunity for and a challenge to contraceptive development. Priorities in contraceptive research need to be reexamined to include methods that can deal simultaneously with unintended pregnancy and AIDS, as well as with less lethal sexually transmitted diseases—methods that go beyond abstinence and spermicide-coated condoms. None of the new methods high in the research and development pipeline meet these criteria.

The bright side of the picture is the number of promising leads for birth control methods that could be developed if there were adequate funding and if some of the other barriers to development were removed. Theoretically, there are ways of revivifying the contraceptive revolution. None are easy, but some are more difficult to achieve than others. Comprehensive tort reform on the federal level to reduce liability is highly unlikely. Treating contraceptives in the same way as vaccines is quite logical, since both are products used by healthy people over long periods of time for preventive purposes. But we must remember that vaccines are far less controversial than contraceptives, and the omnibus health law established only the structure for a federal compensation plan for vaccines;[44] the funding mechanism took an additional year to win approval.[45] Revision of FDA regulations would seem to be an idea whose time has come. But the FDA is a very conservative, slow-moving organization that lives in fear of being attacked by congressional committees. Extending a company's patent by the length of time a product takes for research and development would seem to be one way of bringing industry back into the contraceptive fold. Unless industry returns, far more expensive mechanisms, requiring publicly funded institutions to become involved in the marketing and promotion as well as the development of methods, will be needed if we are to find a solution to the contraceptive problem.

Finally, the general public, health professionals, legislators and consumer and women's groups need a great deal of education on these issues. Lulled by continual news stories of contraceptive breakthroughs, most people do not realize how serious the problem of contraceptive availability is and do not know what changes are needed to solve the problem. Without greater public awareness of the issues, even fewer contraceptives may be available in the future than are available now.

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Do Adolescents Who Relinquish Their Children Fare Better or Worse Than Those Who Raise Them?

By Steven D. McLaughlin, Diane L. Manninen and Linda D. Winges

Summary

When background and other characteristics are controlled for, older adolescents who rear their children are as likely as those who place them for adoption to complete high school. However, relinquishers are more likely to complete vocational training and have higher educational aspirations. Further, relinquishers are more likely to delay marriage, to be employed six and 12 months after the birth and to live in higher income households than are child rearers. Child rearers are more likely to become pregnant again sooner and to resolve subsequent pregnancies by abortion.

Adolescents who relinquish their children do not suffer more negative psychological consequences than do those who raise their children. Overall, both groups indicated very high levels of satisfaction with their decision to relinquish or to rear, although relinquishers were slightly less satisfied with their decision than were child rearers.

The study sample consisted of 123 child rearers and 146 relinquishers who had attended a pregnancy-counseling program affiliated with a large adoption agency that practices open adoption. Hence, the findings are limited to a select sample and should not be generalized beyond adolescents who participate in a similar program.

Introduction

Adolescents who reject abortion as a means for resolving a pregnancy are faced with two options—they may raise their children or they may relinquish them for adoption. While numerous studies have documented the negative consequences of parenting "too early,"[1] few studies have examined the outcomes experienced by adolescents who relinquish their children. There are two primary reasons for this lack of information. First, relinquishment is a relatively rare event.[2] Second, it has been difficult to collect data on women who relinquish their children because adoption has traditionally been a highly confidential process.

The research reported here provides a description of the outcomes experienced by adolescents who relinquish their children for adoption. In addition, we compare the outcomes for such women with those for adolescents who rear their children. Although both groups of adolescents are similar in having become pregnant and having decided to carry the pregnancy to term, those who choose to raise their children assume the responsibilities and demands of parenting, while those who relinquish their children do not. Consequently, observed differences in the outcomes investigated in this study can be attributed with some confidence to the experience of rearing a child or of placing a child for adoption. Further, we believe that comparing the outcomes experienced by these two groups will enable pregnancy counselors, policymakers and pregnant teens to better understand the likely consequences of the decision to relinquish or to rear.

Another advantage to such a comparison is that it reflects the actual alternatives confronted by premaritally pregnant teenagers who have rejected abortion. Both child rearers and relinquishers are likely to appear disadvantaged when compared with the general population or with a population of never-pregnant teenagers. However, such a comparison is not relevant to the pregnant teenager who chooses to carry her pregnancy to term. The relevant question is the one we have posed, namely, "Do adolescent mothers who relinquish their children do better or worse than those who elect to raise their children, and in what specific areas do they do better or worse?"

It has long been assumed that adolescents who place their children for adoption can avoid many of the long-term consequences of adolescent childbearing, because they are not affected by the same financial, emotional and child-care demands as are those who rear their children. In fact, however, the limited literature on relinquishment suggests that there are a number of negative long- and short-term consequences stemming from the relinquishment decision. It has been argued that the experience of giving birth and then placing the child for adoption is typically followed by a period of grief that may affect subsequent educational, marital, fertility or economic behavior.[3] Some studies of relinquishers also suggest that such women suffer a variety of negative psychological consequences.[4] Unfortunately, these studies have been based on small clinical samples or on self-selected samples. For example, samples have been drawn from among psychiatric patients, members of advocacy organizations such as Concerned United Birthparents and volunteers who respond to articles published in magazines, newspapers and adoption newsletters. Thus, although the studies provide evidence that some women who relinquish their children experience long-term adverse consequences, inherent selection bias makes it impossible to assess whether their findings can be generalized. Furthermore, because such studies do not compare child rearers with relinquishers, the issue of the *relative* well-being of both groups of adolescents has not been addressed.

The conceptual model for our study is the life-course perspective. Briefly stated, this perspective suggests that the timing and sequencing of major life events, such as the birth of the first child, can have substantial consequences for subsequent life experi-

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ences. Having a child "too early" often forces adolescents who rear their children to assume the adult roles of mother, wife and worker before they are physically or emotionally prepared to do so. As a result, they may not be able to complete their education or they may have to combine the difficult roles of mother and student. Further, they may leave their parents' home before they are ready to live independently; they may enter into less-than-optimal marriages in order to legitimize their children; and they may have to seek employment, often when they lack marketable skills.

Table 1. Background characteristics of adolescent child rearers and relinquishers

Characteristic	Rearers	Relinquishers
Mean age at first birth	17.1	16.9
% living in city at age 10	20.0*	11.8
% living with both parents at age 10	58.2**	68.3
% white	86.1	89.0
% Catholic	15.8	20.0
Mean mother's education (highest grade completed)	12.1**	12.8
Mean father's education (highest grade completed)	12.1**	12.7
% enrolled in school six months before birth	62.1**	74.1
% employed six months before birth	37.6	31.7

*Difference between rearers and relinquishers is significant at $p \leq 0.10$.

**Difference between rearers and relinquishers is significant at $p \leq 0.05$.

We hypothesized that our study would show that adolescents who rear their children achieve a lower level of education, are less likely to be employed and live in poorer households than do adolescents who relinquish them. We also expected to find that those who raise their children, motivated by a desire to legitimize the birth or to obtain financial support and assistance in childrearing, marry earlier than do relinquishers. Our expectations regarding the timing of subsequent pregnancy and childbirth were less clear, however. Because their education and employment opportunities will already have been affected by childrearing, adolescents who raise their children may feel that having another child will cost them relatively little in terms of career development; consequently, they may have a subsequent birth sooner than will relinquishers. Perhaps adolescents who decide to place their children for adoption do so in order to continue their education and career plans without the interruption of childrearing. On the other hand, it is sometimes hypothesized that relinquishers, grieving over the loss of their first child, quickly become pregnant again and have a subsequent child to "replace" their first child. In sum, there are reasons to expect that both those who raise their children and those who relinquish them will experience subsequent pregnancy and childbirth within a relatively short period of time.

We cannot predict which group will be most likely to experience negative social-psychological outcomes. Research on the consequences of parenting indicates that younger adolescent mothers may have relatively low self-esteem both before and after childbirth.[5] Research on the consequences of relinquishing suggests that placing a child for adoption may have a negative social-psychological impact on the mother, but such studies have all been based on self-selected samples. Until now, no study has compared the two groups in terms of social-psychological outcomes.

Research Design

Data for our analysis were obtained from questionnaires filled out in 1985 by former clients of Options for Pregnancy, a pregnancy-counseling program affiliated with a large adoption agency in the Pacific Northwest that promotes "open adoption."* A client was considered eligible for the study if the premarital pregnancy for which she had received counseling was her first; if she was less than 20 years old at the time of the birth; and if at least six months had elapsed since the birth.

Of the 560 clients who were initially considered eligible for the study, 27 were later determined to be ineligible (primarily because they did not have a live birth) and 167 were not located. Of the 366 eligible clients who were located, 331 (90 percent) agreed to participate in the study and were sent questionnaires. Of the 331 questionnaires mailed, 269 (81 percent) were returned.†

The final survey sample consisted of 123 child rearers and 146 relinquishers who had attended at least one counseling session during the period 1977–1984. Thus, data were collected from six months to seven years after the birth of a client's first child. However, over two-thirds of the respondents had received counseling services since 1981.

Although nationwide only eight percent of infants born premaritally to adolescents aged 17 or younger are placed for adoption,[6] roughly 50 percent of the pregnant adolescents counseled by Options for Pregnancy elect to relinquish their child. Hence, these clients do not constitute a representative sample of pregnant adolescents, and the magnitude of the effects of parenting or relinquishing on each of the outcomes discussed here cannot be generalized to the overall population of pregnant adolescents. However, the comparison is internally valid because the relative well-being of the two groups is not affected by the unique characteristics of the sample.

In addition to background demographic data, the questionnaire elicited information on the women's marital and pregnancy histories; educational attainment, employment and living arrangements; overall quality of life; 1984 household income; and satisfaction with counseling services.

Standard ordinary least squares regression procedures were used in the analysis of all outcome variables. In addition to a dummy variable representing the relinquish/rear decision, a number of other independent variables were included in the regression equations. These included background characteristics of the respondents prior to the birth of their first child as well as personal and household characteristics of the respondents at the time of the survey.

Our research design does not entirely eliminate the problem of spurious association between the outcome measures and differences in the background characteristics of the two groups of adolescents. Therefore, prior to the analysis of the specific outcomes, we attempted to identify the factors related to the relinquish/rear decision that may also affect the outcomes.

The background characteristics of the two groups of adolescents are shown in Table 1. The groups were similar in the average age at which the birth occurred (17.1 years among those who raised their children and 16.9 among those who relinquished them). However, compared with women who raised their children, relinquishers were significantly less likely to have lived in a city at age 10, were more likely to have lived with both parents at age 10, had parents who had attained higher levels of education and were more likely to have been enrolled in school six months prior to the birth of their children. This general pattern showing less advantaged adolescents to be the most likely to raise their children is consistent with previous research on relinquishment[7] as well as with research comparing adolescents who elect to raise their children with those who choose abortion.[8]

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*"Open adoption" refers to a process in which the channels of communication between birth parents and adoptive parents are open. In most cases, birthmothers can participate in choosing the adoptive family. The degree of communication between the birthmother and the adoptive family can vary from single one-way letters sent through an intermediary, to annual letter and picture exchanges to face-to-face meetings.

†A higher proportion of relinquishers (76 percent) than of child rearers (65 percent) were located and, of those located who agreed to participate, a higher proportion of relinquishers (88 percent) than of child rearers (74 percent) returned questionnaires. Locating relinquishers was easier than locating child rearers because many relinquishers remained in contact with the agency in order to receive information about their children. The proportion of child rearers who could not be located may be inflated because clients for whom the pregnancy outcome was unknown were assumed to have raised their children.

Given these differences between child rearers and relinquishers, it is clear that a comparison of outcomes must control for characteristics of the adolescent that are potentially both predictors of the relinquish/rear decision and predictors of the outcome being considered. As a first step in identifying the variables that precede the relinquish/rear decision, we performed a multiple regression analysis to predict the decision from a series of background variables. Two background variables were found to be significant predictors of the decision—the highest grade completed by the adolescent's mother and urban or rural residence at age 10. (Respondents whose mothers were more highly educated were more likely to relinquish their children than were those whose mothers were less highly educated. Urban respondents were less likely to relinquish their children than were rural respondents.) Since these two background characteristics also have the potential to affect outcomes, they were both included as controls in all first runs of the outcome regression equations. Four other background variables—age at first birth, race, religion and whether or not the respondent lived with both parents at age 10—were also considered for inclusion in all first runs of regression equations.

Other variables were entered into the final equation when they were found to be significantly related to specific outcomes. For example, highest grade completed six months before the birth was included as a control in the analysis of educational attainment; number of months married was controlled for in the analysis of subsequent pregnancy; and characteristics of the household in which the respondent was living at the time of the survey were controlled for in the analysis of household income.*

In addition to entering these independent variables where appropriate, we also examined all possible first-order interactions of these variables with the relinquish/rear decision. If an interaction term produced a significant improvement in the predictive power of the equation (at the $p<0.05$ level), it was retained in the equation. Because space limitations do not allow us to present a complete discussion of each regression equation, we present summary tables of the unadjusted means and the adjusted means (based on the regression equations) for the outcomes among both child rearers and relinquishers. The adjusted means represent the values of the outcomes that the two groups would have on the outcome measures if they had the same values on all control variables included in the final regression equations. The extent to which differences in the outcome variables are due to differences in background and other control variables will be reflected in the differences between the unadjusted and adjusted means for the two groups. Notes at the bottom of each table list the covariates that were found to be significant for each outcome and were consequently included as controls in the final regression equation. Covariates that were not found to be significant were dropped from the final equation and from the list accompanying each table.

Educational Attainment

Previous research has shown that adolescent mothers are much less likely to complete high school and to acquire any additional education than are their childless peers.[9] Similarly, it has been established that adolescent mothers achieve significantly less education than do mothers who delay childbearing until their early to middle 20s.[10] One possible explanation for the negative relationship between adolescent motherhood and educational attainment is that the same factors that predispose individuals to have an early first birth may be associated with lower educational attainment. Although past studies have included controls for background characteristics that might influence both adolescent fertility and education, it is possible that unmeasured or poorly measured spurious factors account for all or some of the apparent association between early childbearing and lower educational attainment.

We developed five separate indicators to measure various aspects of postbirth educational attainment among adolescents who raised their children and those who relinquished them. The five indicators were school enrollment six months after the birth, acquisition of a high school diploma or an equivalency diploma (GED certificate), completion of vocational training, highest grade completed at the time of the survey and highest grade respondents planned to attain.

As Table 1 showed, six months before the birth, 62 percent of adolescents who subsequently chose to rear their children and 74 percent of those who subsequently decided to relinquish them were enrolled in school. This differential most likely reflects the fact that pregnant adolescents who have already left school or who have completed high school are more likely to rear their children than are those who remain in school. The original gap in school enrollment status had widened six months after the birth, when almost 70 percent of relinquishers, compared with only 45 percent of child rearers, were enrolled in school (not shown). This differential reflects the difficulties that child rearers encounter when they attempt to combine the roles of student and parent.

Multivariate analysis of school enrollment six months after the birth was restricted to respondents who were enrolled in high school as a junior or less six months before the birth. This restriction was imposed for two reasons: First, by including only those enrolled in school prior to the birth, we eliminate respondents who dropped out of school prior to the pregnancy. For these respondents, the causal order of pregnancy and educational attainment is obscure. Students who drop out of high school prior to conception may have made a decision about their educational careers before pregnancy; consequently, the pregnancy and subsequent birth cannot be considered to determine their educational attainment. Second, by excluding respondents who had already completed high school (or were very near completion) at the time of conception, we avoid including adolescents who could acquire a high school diploma or its equivalent without returning to school after the birth.

Overall, 74 percent of the adolescents who were enrolled in school as a junior or less six months before the birth were enrolled in school six months after the birth. The unadjusted means shown in Table 2 (page 28) indicate that child rearers were significantly less likely than relinquishers to be enrolled in school six months after the birth (65 percent vs. 81 percent). However, the adjusted means, which are controlled for background characteristics, highest grade completed before the birth and living arrangements after the birth, show that the relinquish/rear decision did not affect postbirth school enrollment. Rather, age at first birth was the most important predictor of postbirth school enrollment: Older adolescents were less likely than younger ones

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*The causal ordering of the relinquish/rear decision and these additional control variables was sufficiently indeterminate to prevent the construction of reduced-form regression equations and the isolation of indirect effects.

Table 2. Unadjusted and adjusted values on indicators of educational status, for adolescent child rearers and relinquishers

Indicator	Unadjusted		Adjusted	
	Rearers	Relinquishers	Rearers	Relinquishers
% enrolled in school six months after birth†	64.9	80.7	74.8	73.8
% earning diploma or GED certificate‡	48.1	70.3	54.7	63.3
% completing vocational training§	22.0	34.3	21.2*	34.8
Highest grade completed at survey**	10.7	11.6	na	na
Less than senior at pregnancy	na	na	9.9*	10.8
Senior at pregnancy	na	na	11.9	11.9
Years of additional education desired††	1.2	1.9	1.2*	1.8

*Differences in adjusted means between relinquishers and child rearers are significant at $p \leq 0.05$.

†Analysis restricted to respondents enrolled in high school six months before the birth as a junior or less. Adjusted means are controlled for mother's education, age at first birth, highest grade completed six months before the birth and living arrangements six months after the birth.

‡Analysis restricted to respondents who had not completed high school or received a GED certificate at the time of birth and who were no longer enrolled in high school at the time of the survey. Adjusted means are controlled for mother's education, number of months between the birth and the survey, number of months married between the birth and the survey and highest grade completed six months before the birth.

§Adjusted means are controlled for age at first birth, urban or rural residence at age 10 and number of months between the birth and the survey.

**Analysis restricted to respondents who were not enrolled in school at the time of the survey. Adjusted means are controlled for age at first birth, number of months between the birth and the survey, number of months married between the birth and the survey and highest grade completed six months before the birth.

††Analysis restricted to respondents who were not enrolled in school at the time of the survey. Adjusted means are controlled for mother's education and school enrollment status six months before the birth.

Note: na = applicable.

to return to school shortly after the birth of the child. Adolescents whose own mothers were more highly educated, those with a higher level of education prior to the birth and those who lived with their parents after the birth were more likely than others to be enrolled in school six months after the birth of their child.

The second indicator of educational attainment—the proportion of respondents who eventually acquired a high school diploma or its equivalent—has important implications for the subsequent employability and economic well-being of relinquishers and child rearers. The subsample for this analysis comprised respondents who had neither completed high school nor received an equivalency diploma at the time of the birth and who were no longer enrolled in high school at the time of the survey. By excluding women who were enrolled in precertification schooling at the time of the survey, we were able to eliminate those who might eventually complete high school but had not yet done so. However, respondents who were enrolled in post–high school training were included in the analysis.

Because attainment of the high school credential was measured at the time of the survey, our multivariate analysis controlled for the amount of time that had elapsed since the birth (during which time the respondent had had an opportunity to complete her high school education). Also, since previous studies have shown that married adolescents are less likely to acquire additional education than are unmarried adolescents,[11] we controlled for the number of months married between the birth and the survey. Finally, to adjust for the number of additional years of education required to complete high school, we controlled for the highest grade completed six months before the birth.

As expected, the greater the amount of time that had elapsed since the birth, the less time spent married and the higher the grade completed prior to the birth, the greater the likelihood that the adolescent had completed high school. As can be seen in Table 2, the unadjusted means show that relinquishers were considerably more likely to complete high school than were child rearers (70 percent vs. 48 percent); however, the adjusted means indicate that the relinquishment decision did not have a significant effect on high school completion (63 percent vs. 55 percent). The only background variable that significantly affected the completion of high school was mother's level of education, which was positively associated with completion. Given similar backgrounds and the same length of time since the birth of the child, adolescents who reared their children were as likely as those who relinquished them to acquire a high school diploma or an equivalency certificate.

Our third indicator of educational attainment—the acquisition of vocational training following the birth—enabled us to assess the relative ability of both groups of adolescents to acquire job-oriented education. Overall, 29 percent of respondents had completed some form of vocational training. The table shows that adolescents who relinquished their children were significantly more likely to acquire vocational training than were those who reared them (34 percent vs. 22 percent).

Not surprisingly, the results of the multivariate analysis of vocational training indicate that the amount of time that had elapsed between the birth of the child and the survey significantly affected the attainment of vocational training. Older age at first birth and urban residence at age 10 were also related to the attainment of some form of vocational training. After controlling for all of the significant covariates, the relinquishment decision was found to have a significant positive effect on vocational training. With all else equal, those who relinquished their children were 14 percentage points more likely than those who reared them to complete vocational training.

The fourth indicator of educational attainment that we examined was the highest grade respondents had completed by the time of the survey. In order to restrict our analysis to those whose current educational level was likely to be the highest grade completed, we included only those respondents who were not enrolled in school at the time of the survey. Controls were added to adjust for the amount of time since the birth (during which the respondent had had an opportunity to raise her level of education), the amount of time the respondent had been married since the birth and the highest grade completed six months before the birth (to control for differences in educational attainment at the time of the pregnancy).

As expected, the results indicate that the more time that had elapsed since the birth, the higher the educational attainment. Conversely, the more time spent married, the lower the educational attainment. Only one background variable—age at first birth—had a significant effect on highest grade completed: The older the respondent, the less education she was likely to have completed.

The impact of the relinquishment decision on highest grade completed is conditioned by the level of education of the adolescent at the time of her pregnancy. (Table 2 shows the adjusted means for different levels of education prior to the birth.) As illustrated by the adjusted means in the table, relinquishment had a significant positive effect on education among those who had lower levels of educational attainment at pregnancy (10.8 years of school completed vs. 9.9). However, among adolescents who were high school seniors at the time of pregnancy, the relinquishment decision had no effect on the highest grade completed by the time of the survey (both groups had completed 11.9 years of schooling). Thus, the relatively older, more educationally advanced adolescents who elected to raise their children were able to attain educational parity with their counterparts who chose to relinquish them. However, among adolescents who became pregnant early in their educational careers, those who decided to raise their children attained a significantly lower level of education than did those who elected to relinquish their children.

Our final educational analysis was based on a comparison of the highest grade respondents said they planned to attain minus the highest grade they actually completed. This variable was intended to serve as an indicator of the extent to which additional education beyond that attained at the time of the survey was expected by those who had raised their children and those who had relinquished them. The analysis was restricted to those who were not enrolled at the time of the survey, because highest grade completed was not known for enrolled respondents.

Overall, respondents who were not enrolled in school at the time of the survey expected to obtain an additional 1.5 years of schooling. As the unadjusted means in Table 2 indicate, relinquishers had significantly higher expectations for future educational attainment than did child rearers (1.9 additional years vs. 1.2). Multivariate analysis confirmed that respondents with more highly educated mothers were more likely than others to have educational aspirations that exceeded their current levels of attainment. Also, those who had been enrolled in school during their pregnancies were more likely to expect additional education than were others, because pregnancy had interrupted their schooling. However, even when mother's educational level and respondent's school enrollment status six months before the birth were controlled for relinquishers had higher educational aspirations than did child rearers.

Marriage and Subsequent Fertility

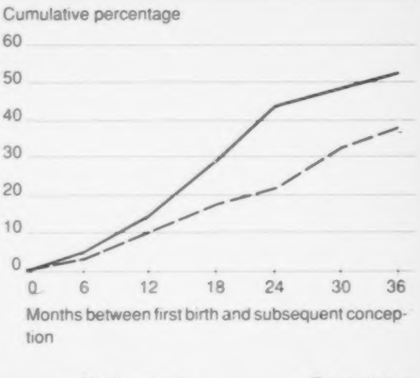
It is well established that adolescent mothers marry earlier and have less stable marriages than do mothers who delay the first birth beyond the age of 20.[12] It has also been shown that women who begin childbearing during adolescence have shorter birth intervals and larger completed family sizes than do women who delay childbearing.[13] However, no previous studies have compared the marriage and subsequent pregnancy experiences of adolescent mothers who rear their children and those who place them for adoption.

Our analyses of marriage and subsequent fertility focus on the time between the first birth and marriage, the time between the first birth and the next pregnancy and the time between the first birth and the next pregnancy resulting in a live birth. We performed separate life-table analyses for those who relinquished their children and for those who reared them in order to compare the cumulative probabilities of marrying or becoming pregnant again in the three years following the birth of the first child. Life-table techniques were used because they adjust for variations in the time elapsed between first birth and the survey, which ranged from six months to seven years among our sample. In addition, we performed multiple regression analysis to isolate the influence of the relinquishment decision on the likelihood of marriage or of subsequent pregnancy.

First, we examined the effect of the relinquishment decision on the probability that the adolescent will marry. All respondents were unmarried at the time of conceiving their first child and were included in the analysis. The results of life-table analysis reveal that those who raise their children are likely to marry significantly sooner than are those who place them for adoption. At 12, 24 and 36 months after their first birth, child rearers are more than twice as likely as relinquishers to be married. By 36 months after the first birth, for example, 45 percent of child rearers and only 20 percent of relinquishers are likely to be married.

Similarly, the results of the multiple regression analysis—which controlled for background characteristics as well as characteristics six months before the birth (employment, school enrollment status, highest grade completed and residence with both parents)—show child rearers to be twice as likely as relinquishers to marry. Overall, 36 months after their first birth, respondents who were younger at the time of the birth and those who were enrolled in school during their pregnancy are less likely to be married than are their older, nonenrolled counterparts. In addition, Catholics are less likely than others to marry. On the other hand, white respondents, respondents who were employed during their pregnancy and respondents who had completed more years of school at the time of the birth are more likely than others to marry within 36 months of the first birth.

Figure 1. Cumulative percentage of adolescent child rearers and relinquishers who conceive within three years of their first birth

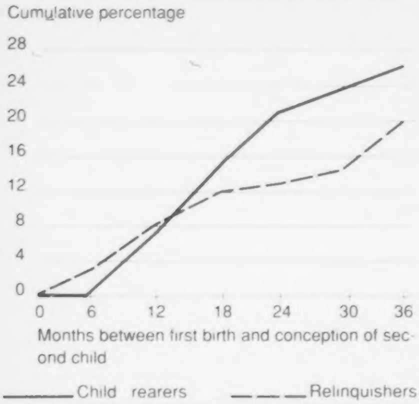


Differences between child rearers and relinquishers in the likelihood of marriage are not entirely due to the fact that the decision to rear the child is made in conjunction with the decision to marry. A separate analysis of respondents who had married more than six months after the birth still shows that child rearers were significantly more likely than relinquishers to be married three years after the birth.

Next, we examined the effect of the relinquishment decision on the probability that the adolescent will become pregnant again. The percentages of child rearers and relinquishers who conceived again within three years of the birth of their first child are presented in Figure 1. As the figure indicates, higher proportions of adolescents who rear their children than of those who place their children for adoption are likely to conceive again 12, 24 and 36 months after the birth of their first child. By the end of 36 months, 52 percent of child rearers and 37 percent of relinquishers have had a subsequent conception.

Since the previous analysis showed that child rearers are more likely than relinquishers to marry following the birth, we performed multiple regression analysis to examine the influence of the relinquishment decision on the probability of becoming pregnant again, controlling for the number of months married and other fac-

Figure 2. Cumulative percentage of adolescent child rearers and relinquishers who conceive within three years of their first birth and whose conceptions end in a live birth



tors.* The results indicate that even after differences in the amount of time spent married are controlled for, those who rear their children are more likely than those who relinquish them to have a subsequent pregnancy.

Finally, we looked at the effect of the relinquishment decision on the probability that the adolescent will have a second pregnancy resulting in a live birth. As Figure 2 illustrates, by 36 months after the birth of their first child, 26 percent of those who rear their children and 20 percent of those who relinquish them conceive a second child. The results of both the life-table analysis and the multiple regression analysis indicate that differences between the two groups in the probability of conceiving a second child and carrying the pregnancy to term are not statistically significant, either before or after number of months married is controlled for. Thus, although adolescents who raise their children are more likely than relinquishers to conceive again within 36 months of the first birth, they are not significantly more likely to carry the pregnancy to term. These results suggest that adolescents who rear their children are more likely than relinquishers to resolve their subsequent pregnancies by abortion.

Table 3. Unadjusted and adjusted values on indicators of employment status and per capita household income, for adolescent child rearers and relinquishers

Indicator	Unadjusted		Adjusted	
	Rearers	Relinquishers	Rearers	Relinquishers
% employed 6 mos. after the birth†	32.5	51.5	31.8*	51.6
% employed 12 mos. after the birth‡	44.3	69.8	50.0*	64.3
1984 per capita household income (in $)§	3,315	7,799	4,392*	6,620

*Differences in adjusted means between relinquishers and child rearers are significant at $p \leq 0.05$.

†Adjusted means are controlled for race, residence with both parents at age 10 and employment status six months before the birth.

‡Adjusted means are controlled for mother's education and employment status six months after the birth.

§Analysis restricted to respondents for whom at least 12 months had elapsed since the birth. Adjusted means are controlled for residence with both parents at age 10, urban or rural residence at age 10, employment status at the survey and household composition at the survey (number in household aged >18 and <6).

Employment and Household Income

Numerous studies have found that early childbearing has negative economic consequences for adolescent mothers and their children. These consequences include lower levels of labor-force participation, lower occupational attainment, lower earnings and household income and higher rates of welfare dependency.[14] We examined the employment status and household income of child rearers and relinquishers in order to determine which group fares better financially.

A comparison of the employment status of the two groups both before and after the birth reveals striking differences. Six months before the birth, the proportion employed—either full-time or part-time—was higher, but not to a significant degree, among adolescents who went on to rear their children than among those who were to relinquish them (38 percent vs. 32 percent). As Table 3 shows, however, six months after the birth, the proportion employed had changed little among child rearers but had increased appreciably among relinquishers (33 percent vs. 52 percent). One year after the birth, 44 percent of child rearers and 70 percent of relinquishers were working. The differences in unadjusted percentages employed both six and 12 months after the birth are statistically significant.

To estimate the effects of the relinquish/rear decision on employment status six and 12 months after the birth, independent of differences in background characteristics and household structure, we looked at the two employment status variables, using a multivariate framework.† Two background variables that most likely reflect socioeconomic status—race and residence with both parents at age 10—significantly affected employment status six months after the birth: White adolescents and those who were living with both parents at age 10 were more likely to be employed six months after the birth than were others. The relinquishment decision and employment status six months before the birth were also found to be positively associated with employment status six months after the birth. However, even when race, residence with both parents at age 10 and employment status before the birth were controlled for, relinquishers were significantly more likely than child rearers to be employed six months after the birth (52 percent vs. 32 percent).

The analysis of employment status 12 months after the birth was restricted to the subsample of respondents who had given birth at least one year before the survey. Again, the relinquishment decision and prior employment status were found to be the two most important factors influencing employment status. All other things being equal, adolescents whose mothers were more highly educated were significantly more likely than others to be employed 12 months after the birth.

It is not surprising that with the added responsibilities of childrearing, adolescents who raised their children were less likely than those who relinquished them to be working outside the home. What is surprising is that such other factors as marital status, educational attainment, household structure and school enrollment had no influence on employment status after the birth. Indeed, the results of our analysis suggest that those who were in school were just as likely to be working as were those who were not enrolled in school.

We next compared the 1984 per capita household incomes of child rearers and relinquishers. Because per capita income adjusts for household size, it provides a more realistic indication of the economic well-being of the adolescent mother and her family than does total household income. As in the previous analyses, it is important to control for differences between the characteristics of relinquishers and child rearers that may be associated with both the relinquish/rear decision and the postbirth per capita household income.

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*Control variables considered for inclusion in the regression analyses of subsequent pregnancy and subsequent birth were the six background characteristics, the respondent's status six months before the birth (school enrollment, employment, highest grade completed, residence with both parents) and number of months married.

†Control variables considered for inclusion in the regression analyses of employment status were the six background characteristics, respondent's marital status six and 12 months after the birth, highest grade completed, school enrollment status, residence with parents and employment status six months before and six months after the birth.

Although we did not have a direct measure of prebirth income, we were able to include a number of prebirth measures as controls, such as race, parents' educational attainment, residence with both parents at age 10 and urban residence at age 10.

Based on a comparison of unadjusted means, it appears that the decision to rear or to relinquish a premaritally conceived child has a significant impact on the later economic well-being of the mother and her family. As shown in Table 3, the 1984 per capita income among relinquishers was more than twice that among child rearers ($7,799 vs. $3,315). The difference is not surprising, because the average total household income among relinquishers was much higher than that among child rearers ($22,218 vs. $12,783) and the average family size among relinquishers was smaller than that among child rearers (3.3 vs. 3.9).

The results of our multivariate analysis of household income* indicate that urban residence at age 10 was associated with higher per capita household income. This relationship is probably due to a positive association between urban residence at age 10 and current urban residence as well as to a positive association between urban residence and income. Residence with both parents at age 10 was also associated with higher household income, probably because this variable is a reflection of socioeconomic status. Additionally, the results of the analysis indicate that when the relinquish/rear decision and all other variables included in the regression equation are controlled for, the per capita household income among respondents employed either full-time or part-time was almost $1,800 higher than that among respondents who were not employed.

Not surprisingly, household characteristics were found to be important determinants of per capita household income. Two variables that reflect larger household sizes—the presence of household members under age six and over age 18—were both negatively related to per capita income. However, since some household members over 18 years of age are potential wage earners, their presence had a less negative effect on per capita income than did the presence of preschoolers. When variables reflecting family size were controlled for, whether or not the adolescent was living in her parents' household had no significant effect on per capita income.

Nevertheless, even when differences in background characteristics and household size are controlled for, the relinquish/rear decision remains an important factor influencing household income. Given the same background characteristics, current employment status and household structure, the per capita income of those who placed their children for adoption was $2,228 higher than that of those who raised them.

Social-Psychological Consequences

To assess the social and psychological consequences of the decision to rear a child or to relinquish it for adoption, we measured respondents' reported levels of self-satisfaction, life satisfaction, life difficulty and satisfaction with the decision to raise or to relinquish. Because all of the social-psychological outcomes were measured at the time of the survey, and the time that had elapsed between the birth and the survey varied within the sample, all of the analyses included controls for time since the birth. In addition, since social and psychological outcomes can be expected to vary with time since the birth and may vary nonlinearly and at different rates for the two decision groups, we constructed four separate variables to measure different segments of time since the birth.

First, we asked respondents to rate their overall sense of self-satisfaction on a scale ranging from 1 (completely dissatisfied) to 7 (completely satisfied). The unadjusted and adjusted means† for levels of self-satisfaction among the two groups were similar; both child rearers and relinquishers had moderately positive levels of self-satisfaction (5.15 and 5.10, respectively).

The results of our multivariate analysis‡ suggest that, consistent with most of the literature on self-esteem, education is positively associated with self-satisfaction. In addition, those who were currently married at the time of the survey reported higher levels of self-satisfaction than did those who were not married; however, current employment and school enrollment status had no effect on self-satisfaction. The most important determinant of self-satisfaction was the amount of time that had elapsed since the birth. Self-satisfaction appeared to decline in the months following the birth among both groups of adolescents. The relinquish/rear decision itself had no effect on self-satisfaction.

The next two social-psychological indicators were based on responses to a series of 10 questions. Each respondent was asked to indicate which of two opposite words was closer to how she felt about her life (e.g., "boring" vs. "interesting," "friendly" vs. "lonely" and "tied down" vs. "free"). These 10 items were then combined into two factors using a principal components factor analysis.

The first factor, "life satisfaction," reflected a positive perception of the quality of life. A regression procedure was used to create a life satisfaction score for each respondent. Respondents who indicated that their lives were "full," "rewarding," "interesting," "worthwhile" and "hopeful" scored high on this indicator. The second factor, "life difficulty," reflected a more negative perception of the quality of life. Respondents who indicated that their lives were "hard" and "tied down" scored high on this indicator.

The analysis revealed no significant differences between child rearers and relinquishers in life satisfaction; however, child rearers were significantly more likely to perceive their lives as being difficult. In the multiple regression analysis, education was positively associated with life satisfaction and negatively associated with life difficulty. In other words, the more highly educated respondents were more satisfied with their lives and were significantly less likely to report that their lives were difficult than were their less educated counterparts. Those who were married at the time of the survey were less likely to perceive their lives as being difficult than were those who were unmarried; however, marital status was found to have no effect on life satisfaction.

As in the analysis of self-satisfaction, the time that had elapsed since the birth of the first child proved to be the most important predictor of both life satisfaction and life difficulty. For both groups of respondents, life satisfaction declined significantly and life difficulty increased significantly as time since the birth increased.

Our final social-psychological outcome was respondents' satisfaction with their decision to rear or to relinquish their children. Relinquishers were asked to indicate on a scale of 1 (strongly disagree) to 5 (strongly agree) how much they agreed with the statement "I am generally satisfied with my decision to place my child for adoption." Child rearers were asked a similar question regarding their decision to raise their child. Among both groups, married women were significantly more likely to be satisfied with their decision than were unmarried women. Although child rearers and relinquishers both expressed a high level of satisfaction with their decisions, the adjusted means* indicate that those who chose to place their children for adoption were significantly less satisfied with their decision than were those who elected to raise their children (4.35 vs. 4.69).

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*Control variables considered for inclusion in the regression analyses of per capita household income were the six background characteristics, highest grade completed, marital status, number of months since the birth, employment status, school enrollment status, number of household members over age 18 or under age six and residence in the parents' household.

†Adjusted means are controlled for age at first birth, highest grade completed at the survey, marital status at the survey and number of months between the birth and the survey.

‡Control variables considered for inclusion in the regression analyses of social-psychological outcomes were the six background characteristics, respondent's marital status, employment status, school enrollment status, highest grade completed at the time of the survey and the four time variables.

This finding should be interpreted with some caution, however. First, it is very unlikely that adolescents who choose to rear their children will report that they regret having decided to do so. Such a response might be interpreted to mean that the mother does not love her child. Moreover, the time and effort associated with childrearing is likely to make it very difficult for a mother to express dissatisfaction with her decision. It is also important to remember that the absolute levels of satisfaction with the decision were quite high among both groups of respondents, reaching over 4.0 for relinquishers and child rearers.

Discussion

Consistent with the limited previous research on the determinants of the relinquish/rear decision, we found that adolescents from stable families and higher socioeconomic backgrounds, as well as those with more to lose from rearing a child (in terms of educational or employment opportunities), were more likely to place their child for adoption than were other teenage mothers. In addition, after adjusting for background differences and for other control variables, we found a number of important differences in the subsequent experiences of child rearers and relinquishers.

Relinquishers are, for the most part, more successful than child rearers in that they are more likely to complete vocational training, to delay marriage, to avoid a rapid subsequent pregnancy and to work following the birth of their child. Moreover, relinquishers live in higher income households than do child rearers.

Nevertheless, it is important to note that both relinquishers and child rearers are deprived relative to their never-pregnant peers. Whereas the higher achievement of relinquishers (as opposed to child rearers) reflects the costs of electing to raise a child, the relatively low attainments of both groups reflect the disadvantages shared by all adolescents who bear a child. In short, relinquishment offers a number of important, measurable advantages to pregnant adolescents; however, it does not restore them to attainment levels reached by adolescents who avoid a birth. Adolescents who place their children for adoption continue to live with the disadvantages associated with the individual and socioeconomic factors that initially brought them to the adolescent mother status.

Further, the advantages of relinquishment over childrearing must be evaluated against what have been described elsewhere as the severe and long-term adverse social-psychological consequences of placing a child for adoption. In our analysis, however, we found no evidence of significant negative consequences of relinquishing compared with childrearing. Child rearers and relinquishers have equally high levels of self-satisfaction. Child rearers report that their lives are more difficult and "tied down" than do relinquishers, but the differential is not large and is a natural consequence of raising a child. Relinquishers express slightly less satisfaction with the decision to relinquish than do child rearers with the decision to rear, but overall, both groups indicate very high levels of satisfaction. We did find that among adolescents in both groups, the perceived quality of life and self-esteem declined with the passage of time since the birth of their child. However, since our research design was not longitudinal, it is not possible to draw firm conclusions regarding this apparent deterioration of the quality of life.

Although we found that the decision to relinquish had no deleterious social or psychological consequences, we emphasize that our findings are limited to a select sample and should not be generalized beyond adolescents who participate in a similar pregnancy-counseling program. Moreover, it would be wrong to conclude that it is easy for adolescents to relinquish their children. Our findings merely suggest that, relative to the social-psychological costs incurred by adolescents who raise their children, relinquishers experience no additional negative consequences.

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*Adjusted means are controlled for marital status at the survey.

First Family Planning Visits by Young Women

By William D. Mosher and Marjorie C. Horn

Summary

Data from the 1982 National Survey of Family Growth indicate that among sexually active women aged 15–24, friends and parents are the main sources of referral for first family planning visits. Friends are the leading referral source for women who attend clinics, and parents are the leading referral source for those who go to private doctors. Despite the importance of confidentiality to many teenagers, women who make their first family planning visit before the age of 17 are more likely to be referred by their parents than are those whose first visit occurs when they are 17 or older.

Race, age at first visit and income influence women's choice of a provider (clinic or private doctor). Black women, low-income women and younger women are considerably more likely than their counterparts to use a clinic at first family planning visit.

At their first visit, sixty-seven percent of women receive birth control counseling, and only 50 percent begin using a contraceptive method. Among clinic users, white women are more likely than black women to begin a birth control method (50 percent vs. 40 percent). Women whose first visit takes place before their first conception (including those who have never been pregnant) are much more likely than women whose first visit occurs after their first pregnancy ends to begin a method. Women who make their first visit during their first pregnancy are more likely than those who are not pregnant to receive a pregnancy test or counseling on matters other than birth control. Multivariate analysis shows that the timing of the visit in relation to the first pregnancy is a very important determinant of services received at first visit.

Only 17 percent of young women who have ever had intercourse make their first family planning visit before first intercourse, and 10 percent make their first visit in the same month as first intercourse. For the remaining 73 percent of women, the median delay between first intercourse and first visit is 23 months. Even women whose second intercourse occurs within one month of first intercourse experience a median delay from first intercourse to first visit of 19 months.

Only 17 percent of young women make their first family planning visit before they begin having intercourse, and 73 percent wait an average of 23 months after first intercourse to begin using services.

Introduction

About 1.1 million American teenagers become pregnant every year, and more than half a million become mothers.[1] Teenage mothers face increased risks of single parenthood, incomplete education, poverty, unemployment and welfare dependency; those who marry are at increased risk of experiencing separation and divorce. In addition, their children face greater risks of living in poverty, living with a single parent and having health and developmental problems.[2] Rates of teenage pregnancy are higher in the United States than in other industrialized countries, probably because unmarried American teenagers are less likely to practice contraception than are their European counterparts.[3] In fact, only about half of all U.S. women (or their partners) use any contraception at first premarital intercourse, and the proportions are even lower among black and Hispanic women.[4]

The recent report of the National Academy of Sciences Panel on Adolescent Pregnancy and Childbearing pointed out that a majority of teenagers have premarital intercourse, yet little is known about how to encourage them to postpone it. The panel concluded that making contraception readily accessible "is the surest strategy for pregnancy prevention."[5] Although contraceptive services are widely available through public and private family planning programs, many young people delay their first family planning visit for months after they begin sexual activity.[6]

A few studies have examined some aspects of the use of family planning services by teenagers. One such study found that one-fourth of its sample of teenagers attending clinics in eight American cities in 1980 made their first family planning visit primarily because they suspected they were pregnant.[7] (Suspected pregnancy was by far the leading reason given for visiting the clinics). Another study, based on a sample of teenage family planning clinic patients in 37 counties in 1981, asked the patients why they had chosen to attend clinics rather than to visit private doctors.[8] The three main reasons given were the expense of using a private doctor; fear that a private doctor might tell their parents about the visit; and lack of knowledge of a private doctor to go to for services. A study carried out among private physicians who practiced in the same counties confirmed

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Table 1. Percentage distribution of women aged 15–24 who ever had intercourse and ever made a family planning visit, by family planning service received at first visit, according to selected characteristics, 1982 National Survey of Family Growth

Characteristic	Service received at first visit		
	All women 15–24	Pregnancy test only	Other services*
Race			
White and other	82.6	81.7	82.8
Black	17.4	18.3	17.2
Origin			
Hispanic	7.0	11.8	6.0
Non-Hispanic	93.0	88.2	94.0
Education of mother			
<12 years	30.7	45.1‡	27.7
≥12 years	69.3	54.9	72.3
Income†			
<150%	39.2	53.7‡	36.2
≥150%	60.8	46.3	63.8
Source of service			
Clinic	49.7	53.9	48.8
Private doctor	50.3	46.1	51.2
Service received at first visit			
Received a pregnancy test	23.3	100.0‡	7.3
Did not receive a pregnancy test	76.7	0.0	92.7
Total	100.0	100.0	100.0
Weighted N (000s)	11,051	1,902	9,149
Sample N	1,855§	315	1,540

*Includes all services other than pregnancy tests only.

†In this and subsequent tables, "income" refers to total family income expressed as a percentage of the poverty level.

‡Difference between "pregnancy test only" and "other services" is significant at $p \leq 0.05$.

§Excludes 50 women aged 15–24 who visited a nonmedical counselor.

the teenagers' perceptions: Many physicians (39 percent) were not willing to serve adolescents without parental consent; their average fee for an initial contraceptive visit was $37; and nearly half would not accept Medicaid reimbursement.[9]

A survey of low-income women in four cities found that attitudes toward family planning providers were not the main reason for delayed use of contraception. Instead, the major factors were fear of side effects from the pill and aesthetic objections to barrier methods. The study also found that once women decided to use a method, most preferred to visit a private doctor because they believed that private physicians offered higher quality care, but many went to clinics, primarily because of their lower cost.[10]

Despite their valuable contributions, these studies were limited to teenagers, to clinic patients or to other samples that were not nationally representative. Therefore, they do not tell us about women who go to private doctors, women over age 19 or rural women. The present analysis does not have any of these limitations.

A number of studies did use national samples (of currently married women aged 15–44), but they were based on a less adequate measure of services than we have used. In addition, these analyses were limited to the last (most recent) family planning visit.[11] Consequently, such studies shed no light on the issue of how and when women *begin* to use family planning services.

A subsequent analysis of family planning services that was based on a national sample of all women aged 15–44 used a better measure of services and presented data on age at first visit and the first source of services.[12] A more refined study, which focused primarily on the most recent family planning visit but also included some data on first visits, found that about 50 percent of U.S. women aged 15–24 in 1982 who had ever made a family planning visit used a clinic at their first visit; the remaining 50 percent used a private doctor, private group practice or health maintenance organization (HMO).[13] Both studies found that black women, never-married women and poor women were more likely than others to use a clinic at first visit. However, both studies included a substantial proportion of women who had obtained only a pregnancy test at their first visit, and the second study included a small proportion of women whose first source of service was a nonmedical counselor. Neither study addressed how women learn about the doctor or clinic they visit; what services women receive at their first visit; whether clinics and private doctors provide similar or different services; what factors affect the services women receive at their first visit; how long before or after intercourse women make their first visit; and what factors prolong or shorten the interval between first intercourse and first visit.

The present study attempts to answer these and other questions in an effort to understand the process by which women begin to gain access to and use the family planning service delivery system.

The Data

Our study is based on data from the 1982 National Survey of Family Growth (NSFG), carried out by the National Center for Health Statistics. The NSFG is based on personal interviews with a nationally representative sample of 7,969 women aged 15–44 in the noninstitutional population of the coterminous United States. However, we have limited our analyses of first family planning visits to a subsample of women aged 15–24 at interview who had ever had intercourse and had ever made a family planning visit.

The data on family planning services are based on responses to a series of questions asked of all women who had ever had intercourse. Specifically, women were shown a card that listed a wide range of family planning services and were asked if they had ever used any of them. The services included counseling about contraceptive methods; checkups or medical tests for correct use, for proper fit or for side effects of contraceptive methods; provision of a new method of birth control; and pregnancy testing. Respondents were also asked the date and their age when they first received such services.

Women aged 15–24 who had ever received any of these services were then asked what type of clinic or private medical facility they had first visited; which specific services they had received at their first visit; and how they learned about or were referred to the clinic or private medical service they attended. Older women were not asked these questions because they were not expected to be able to accurately recall the details of their first visit.

There were 1,905 women who met the eligibility requirements for the study. For the present analyses, we have narrowed the NSFG definition of family planning services in two ways, in order to conform to more commonly used definitions of family planning services.[14] First, we excluded fifty women whose first family planning visits were to nonmedical counselors, such as school counselors and clergy, because such counselors cannot perform medical services "related to the provision of a method for postponing or preventing conception."[15] Second, we excluded 315 women whose first visits were made solely for the purpose of obtaining a pregnancy test. Pregnancy tests were included in the NSFG's list of family planning services because such tests often serve as the entry point into family planning services. However, when only a pregnancy test is given and no other family planning services are rendered, such visits cannot properly be considered *family planning* visits.[16] In addition, we excluded seven women who said they had received a pregnancy test, but whose first visit reportedly occurred before the date of first intercourse. Consequently, our final sample consisted of 1,533 women.

Table 2. Percentage of women aged 15–24 who received selected services at their first family planning visit, by income and age at first visit, according to whether visits made solely for pregnancy tests are included

Service	All women 15–24	Income		Age at visit	
		<150%	≥150%	<17	≥17
All first visits					
Began method	40.8	31.9‡	46.6	36.5	42.9
Pregnancy test*	23.3	30.6‡	18.5	22.5	23.6
Birth control counseling	55.6	49.0‡	59.8	59.9	53.4
First visits excluding pregnancy tests only					
Began method	49.3	41.7‡	53.6	42.8§	52.6
Pregnancy test†	7.3	9.3	6.2	9.2	6.3
Birth control counseling	67.1	64.0	68.9	70.2	65.5

*Includes women who received a pregnancy test only and those who received a pregnancy test along with other services.

†Includes only those women who received a pregnancy test along with other services.

‡Difference by income is significant at p≤0.05. §Difference by age is significant at p≤0.10.

Note: Percentages add to more than 100 because some women received more than one service at first visit.

All data are weighted and provide national estimates.* However, because the data we examine are based on less than one-quarter of the total NSFG sample, the sampling variability of the statistics in this article is larger than in most previous analyses of the NSFG. Differences among subgroups as noted below were tested using two-tailed t-tests with 39 degrees of freedom and were found to be significant at p≤0.05 or p≤0.10. Significant differences are noted in the text and indicated in footnotes to the tables.

To determine the effect of excluding from our analyses women whose first visit was made solely to have a pregnancy test, we examined the characteristics of such women. As Table 1 shows, of the 11 million women aged 15–24 in 1982 represented by our sample, almost two million (17 percent) received only a pregnancy test at their first visit. Women who received only a pregnancy test were significantly more likely than those who received other services to have less-educated mothers (45 percent vs. 28 percent) and to have low incomes (54 percent vs. 36 percent).

The first panel of Table 2 shows that when all first visits, regardless of purpose, are considered, 23 percent of the women received a pregnancy test, 41 percent were provided with a contraceptive method and 56 percent received birth control counseling. When all visits are examined, low-income women were significantly more likely than higher income women to have a pregnancy test at first visit (31 percent vs. 19 percent) and were significantly less likely to begin a method (32 percent vs. 47 percent) or to receive birth control counseling (49 percent vs. 60 percent).

However, when first visits made solely for pregnancy tests are excluded from the analysis, the income differentials for women who receive pregnancy tests and for those who receive birth control counseling are reduced substantially and are no longer significant. At the same time, the age difference in the proportion of women who began a birth control method increases when first visits made solely for a pregnancy test are excluded (from a difference of six percentage points to one of 10).

Consequently, including first visits made solely for pregnancy tests, as some studies have done,[17] presents a clear disadvantage: In not conforming to accepted definitions of family planning services, it overstates the incidence of pregnancy tests and understates the incidence of other services received at first family planning visits. Further, it biases the estimates of income differentials among women who receive specific services. Accordingly, women who made such visits were excluded from our analysis.

The variables chosen for study include age at first visit, income, race and timing of the first visit. Age and income are important criteria for obtaining family planning services from federally funded Title X programs. Title X regulations require that such programs use a sliding fee scale based on family income, with patients below the poverty level receiving free services. In 1978, Congress amended Title X legislation to require that the Title X clinics provide services to teenagers.[18] Previous research shows that the choice of provider and the frequency of family planning visits differ according to both age and income.[19] Race may also be important, because rates of teenage pregnancy and use of services differ dramatically by that variable.[20] Preliminary analysis suggested that the timing of the first visit in relation to first intercourse and first pregnancy are also important independent variables.

Referral Patterns

Overall, as Table 3 (page 36) shows, friends and parents were the leading sources of referral for first family planning visits (32 percent and 27 percent, respectively). In addition, 12 percent of women were referred for their first visit by another doctor or clinic, and 11 percent were referred by relatives other than parents. Eight percent learned about their first family planning provider through the mass media, the telephone directory or by other means. Perhaps the most noteworthy finding is the importance of parents and other relatives as sources of referral (38 percent combined), and the comparative unimportance of partners and school personnel (six percent and four percent, respectively).

Patterns of referral showed wide variation according to whether women visited private doctors or clinics. Fifty-one percent of women whose first visit was made to a private doctor had relied on their parents or on other relatives for a referral, whereas only 24 percent of those whose first visit was made to a clinic had done so. On the other hand, 43 percent of women who went to a clinic had relied on their friends for referral, whereas only 22 percent of those who went to a private doctor had done so. These patterns were the same for women in both income groups (not shown) and for white and black women.

Several factors may explain the importance of parents and other relatives as sources of referral to private doctors: Parents may refer their daughters to the family doctor in the hopes that she will receive personalized care, including counseling on pregnancy prevention and contraceptive methods; and parents or other relatives may pay for the visit to a private doctor, either directly or through insurance. Conversely, the greater frequency of friends as sources of referral to clinics may be due to the fact that those who go to clinics often do so to avoid detection by parents.[21] Another study found that particular clinics were often selected on the basis of friends' use of them.[22] Unfortunately, the NSFG did not

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*Further details on the design of the study are available elsewhere. (See: C.A. Bachrach et al., "National Survey of Family Growth, Cycle III, Sample Design, Weighting and Variance Estimation," *Vital and Health Statistics*, Series 2, No. 98, 1985; and W.F. Pratt et al., "Understanding U.S. Fertility," *Population Bulletin*, **39**:5, 1984.)

ask respondents how they paid for their first visit or their reasons for choosing one type of provider over another, so we cannot test these speculations.

School counselors or teachers were a negligible referral source for women who went to private doctors, but were a somewhat more important source for women who went to clinics (one percent vs. eight percent). Overall and for white women, those who attended clinics were significantly more likely to have been referred there by school counselors or teachers than were women who went to private doctors. The difference between clinic and private patients was in the same direction, but not significant, for black women.

In general, differences in sources of referral according to income level were not significant. However, there were some differences according to race: White women were somewhat more likely than black women to have been referred by their husbands, partners or boyfriends (seven percent vs. two percent) or by friends (33 percent vs. 27 percent); and they were slightly less likely than black women to have been referred by a parent (26 percent vs. 32 percent). Among clinic users, black women were significantly less likely than white women to have been referred by friends (32 percent vs. 47 percent). On the other hand, black clinic users were twice as likely as comparable whites to have been referred by a parent (25 percent vs. 12 percent) or by another doctor or clinic (17 percent vs. nine percent).

The number of Hispanic women in our sample was small, but the data in Table 3 show that such women were significantly less likely than non-Hispanics to have been referred to a family planning provider by friends (15 vs. 33 percent), apparently because they were more likely to have been referred by another doctor or clinic, or by a relative other than a parent.

Table 3. Percentage distribution of women aged 15–24 who ever had intercourse and ever made a family planning visit, by source of referral for first visit, according to selected characteristics

Characteristic	Source of referral							Total
	Doctor or clinic	School counselor or teacher	Husband, partner or boyfriend	Friend	Parent	Other relative	Other source or no referral	
All women 15–24*	**12.0**	**4.3**	**6.1**	**32.1**	**26.9**	**10.7**	**7.9**	**100.0**
Private	13.4	0.7†	6.3	22.2†	37.8†	12.9	6.7	100.0
Clinic	10.6	8.1	5.9	42.6	15.4	8.4	9.1	100.0
White								
All	11.2	3.7	6.8‡	33.3§	26.1§	10.3	8.6	100.0
Private	13.2	0.4†	7.0‡	22.6†,§	37.7†	12.2	7.0	100.0
Clinic	8.7‡	8.0	6.5§	46.7‡	11.5‡	7.9	10.7§	100.0
Black								
All	16.7	6.5	1.9	26.6	32.0	11.2	5.0	100.0
Private	15.4	4.3	1.5	12.6†	48.0†	12.7	5.5	100.0
Clinic	17.2	7.5	2.1	32.4	25.4	10.6	4.8	100.0
Income								
<150%	11.2	4.6	5.9	29.3	28.3	12.6	8.1	100.0
≥150%	12.5	4.2	6.2	33.7	26.1	9.6	7.7	100.0
Origin								
Hispanic	20.9	3.8	2.7	15.4**	26.9	21.7	8.7	100.0
Non-Hispanic	11.5	4.4	6.3	33.2	26.9	10.0	7.8	100.0
Age at first visit								
<17	11.3	5.3	5.0	29.6	37.8††	7.3	3.6††	100.0
≥17	12.3	3.8	6.6	33.4	21.4	12.3	10.0	100.0
Timing of visit and intercourse								
Before intercourse	7.6	6.8	3.1	24.8	43.8‡‡	9.1	4.7	100.0
After intercourse	12.5	3.3	7.2	33.5	22.7	12.0	8.8	100.0
Timing of visit and pregnancy								
Before conception	10.1	5.3§§	5.4	34.0	28.5§§	10.0	6.6	100.0
During first pregnancy	16.3	1.2***	4.6	26.5	27.2	9.9	14.3	100.0
After first pregnancy	19.8	1.0	11.7	25.6	16.3	15.8	9.9	100.0

*Sample N=1,470; 63 cases with missing data on source of referral were excluded. With the exception of these 63 cases, sample sizes are similar to those for Table 5.

†Difference between private and clinic patients is significant at p≤0.05.

‡Racial difference is significant at p≤0.05. §Racial difference is significant at p≤0.10.

**Difference by origin is significant at p≤0.05.

††Difference by age is significant at p≤0.05.

‡‡Difference by timing of visit (before or after intercourse) is significant at p≤0.05.

§§Difference between "before conception" and "after first pregnancy" is significant at p≤0.05.

***Difference between "before conception" and "during first pregnancy" is significant at p≤0.05.

Women who were under age 17 at their first family planning visit were almost twice as likely as older women to have been referred by their parents (38 percent vs. 21 percent). Those aged 17 or older were nearly three times as likely to have been referred by other sources or not to have been referred by anyone (10 percent vs. four percent).

Women who made their first family planning visit before first intercourse were nearly twice as likely as those who made the visit after initial intercourse to have been referred by their parents (44 vs. 23 percent). First visits made before a first pregnancy were more likely than first visits made after a first pregnancy had ended to have been the result of referrals by parents (29 percent vs. 16 percent) or by school personnel (five percent vs. one percent).

First Source of Care

Table 4 shows the proportions of women who attended a clinic (rather than a private doctor, private group practice or HMO), according to three of the most important determinants of choice of provider for the first visit—race, income and age. These variables were chosen on the basis of previous research, which showed that black women, young women and low-income women are more likely than others to use clinics.[23] These findings permitted us to predict the direction of the differences in Table 4; consequently, we were able to use one-tailed t-tests in this table only.

About half of all women (49 percent) attended a clinic at first visit, and the remaining 51 percent used a private doctor, private group practice or HMO (not shown). Black women were substantially more likely than white women to attend a clinic (71 percent vs. 44 percent). Even after controlling for both age at first visit and income, black women in every comparison in Table 4 were significantly more likely than white women to use clinics.

What accounts for the race differential in clinic attendance for first family planning visits? Insurance coverage, cost or ability to pay and location of services have been found to be determinants of provider choice.[24] Data from the National Health Interview Survey show that black people under age 25 are substantially less likely than whites to be covered by private health insurance, and are more likely to be covered by public assistance or not covered at all.[25] Consequently, it is likely that a high proportion of blacks find it necessary to obtain health services from publicly supported clinics, which are free or low cost. Further, black women may be more likely than white women to live in areas with a high concentration of clinics, and they are also less likely than whites to have their own means of transportation to other areas.[26] These factors would combine to make black women much more dependent than white women on clinics in their own immediate neighborhoods.

Women who were younger than 17 at first visit were significantly more likely to use clinics than were older women (60 percent vs. 43 percent). Even among higher income women, the proportion of younger women using clinics was significantly greater than that of older women. However, the age differential among low-income white and black women was smaller and not significant. Overall, low-income women were significantly more likely to use a clinic at first visit than were higher income women (58 percent vs. 43 percent). This income differential also occurred among women 17 or older at first visit, but not among those who were younger. These findings are plausible because clinics tend to serve low-income women and minors regardless of their other characteristics; consequently, differences in the proportions using clinics should be smaller by age for low-income women than for higher income women, and smaller by income for minors than for older women.

Services at First Visit

What services did young women receive at their first family planning visit? Table 5 (page 38) shows the proportion of women who used six selected services: provision of a new method of birth control; a checkup for correct use or fit of a method; a checkup for health problems that may be related to use of a nonprescription method; a pregnancy test; counseling about birth control methods; and "other counseling."*

Sixty-seven percent of women received birth control counseling at their first visit. (One study has found that for many young women, the process of learning about contraception does not occur primarily at home or at school, but is often a by-product of visits to clinics or doctors for other family planning services.)[27] Fifty percent of women began a new method of birth control at their first visit, 18 percent received "other counseling" and 18 percent were checked for correct use or fit of a method. At first visit, checks for correct use or fit may include assuring that a diaphragm or IUD fits properly, but may also be closely related to birth control counseling in the sense that suggestions are given regarding the proper use of a method. Services provided less frequently at first visits included a medical checkup or test for side effects of a method (eight percent) and a pregnancy test given in tandem with other services (seven percent).

Women who attended clinics and those who visited private doctors received similar services at first visit, with two notable exceptions. First, white women who attended clinics were significantly more likely than white women who went to private doctors to receive "other counseling" (28 percent vs. 12 percent). Secondly, black women who attended clinics were less likely than black women who went to private doctors to begin using a contraceptive method (40 percent vs. 51 percent), but the difference was not statistically significant.

On average, white women received more services at first visit than did black women (1.8 services vs. 1.5, not shown). At both private doctors' offices and clinics, white women were significantly more likely than black women to be checked for correct use or fit of a method (18 percent of whites vs. nine percent of blacks, at private doctors' offices; and 23 percent vs. seven percent, at clinics). Among clinic users, white women were more likely than black women to begin a method at first visit (50 percent vs. 40 percent). This is important because 71 percent of black women attend a clinic at their first visit; consequently, black women are less likely than white clinics users to be protected from unplanned pregnancy at the end of their of their first visit. (There was no racial differential in the proportion of women who began a method after visiting a private doctor.) In addition, white clinic users were more likely than black clinic users to be checked for method side effects (nine percent vs. four percent) and to receive "other counseling" (28 percent vs. 16 percent).

Low-income women were significantly less likely than other women to begin a contraceptive method at first visit (42 percent vs. 54 percent) or to be checked for method side effects (five percent vs. 10 percent). Other differences in services according to income were not significant.

Table 4. Percentage of women aged 15–24 who ever had intercourse and who used a clinic at first visit, by race, according to income and age at first visit

Income and age at first visit	All	White	Black
All income levels			
All women 15–24	48.7	43.8	71.2
<17	60.2*	53.5*	80.1*
≥17	42.7	39.4	62.5
<150%			
All women 15–24	57.9†	50.1‡	78.9†
<17	64.5	55.5	82.3
≥17	54.1†	47.6†	75.1†
≥150%			
All women 15–24	43.4	40.8	62.3
<17	57.4*	52.5*	77.1*
≥17	36.7	35.6§	50.1

*Difference by age at first visit is significant at p≤0.05.

†Difference by income is significant at p≤0.05.

‡Difference by income is significant at p≤0.10.

§Difference by race is significant at p≤0.05; all other differences by race are significant at p≤0.01.

Note: Analysis is based on a one-tailed t-test in this table only.

Two differences in services received by age at first visit are noteworthy, even though they are significant only at p≤0.10. Women whose first visit occurred before age 17 were less likely than older women to begin a method at first visit. Also, younger women were less likely to be checked for correct use or fit of a method, perhaps because they were less likely to be already using a nonprescription method, such as the condom.

Women whose first visit occurred before their first pregnancy and those whose first visit occurred after their first pregnancy presumably needed similar family planning services—provision of a contraceptive method, appropriate birth control counseling and perhaps a check for correct method use or fit. However, women whose first visit occurred before conception (including those who were never pregnant) received more services, on average, than did those whose first visit occurred after their first pregnancy (1.8 services vs. 1.4, not shown). Specifically, women whose first visit occurred before conception were significantly more likely than were those whose first visit took place after their first pregnancy to begin a method (55 percent vs. 38 percent), to be checked for correct method

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*"Other counseling" comprises advice or counseling on any problems or worries about sexual intercourse, an unwanted or mistimed pregnancy, sterilization and abortion.

Table 5. Number of women aged 15–24 who made a family planning visit and percentage of women who used selected services at first visit, by selected characteristics

Characteristic	N	Service received at first visit					
		Begin method	Check method use or fit	Check method side effects	Pregnancy test*	Birth control counseling	Other counseling
All women†	**1,533**	**49.5**	**17.6**	**8.2**	**6.9**	**67.2**	**18.0**
White	814	50.9§	20.1‡	9.0‡	6.7	67.2	18.9
Black	688	43.2	7.8	4.5	6.8	66.8	15.2
Private							
All races†	641	51.0	16.9	8.9	5.7	68.3	11.9**
White	430	51.5	18.1§	9.0	5.2	68.2	12.0**
Black	198	51.3	9.3	6.0	5.9	64.5	14.2
Clinic							
All races†	892	47.8	18.5	7.5	8.1	66.1	24.4
White	384	50.2§	22.5‡	9.0§	8.7	65.8	27.8‡
Black	490	39.9	7.2	3.9	7.2	67.8	15.6
Income							
<150%	656	41.8‡	16.1	4.5‡	8.8	63.9	20.7
≥150%	877	53.8	18.5	10.3	5.8	69.1	16.5
Origin							
Hispanic	78	51.1	7.1‡	2.7§	8.2	61.3	11.9
Non-Hispanic	1,455	49.3	18.3	8.6	6.8	67.6	18.4
Age at visit							
<17	628	43.2§	13.0§	7.6	8.4	70.4	19.6
≥17	905	52.7	20.0	8.5	6.1	65.6	17.2
Timing of visit							
Before conception	1,099	54.7††	20.9††	10.0††	2.7	71.2	12.8
During first pregnancy	183	28.3‡‡	6.2‡‡	2.6‡‡	32.4‡,‡‡	46.4‡‡	53.4‡,‡‡
After first pregnancy	248	37.5	8.3	2.1	9.0	61.7	17.4

*Includes only those who received a pregnancy test along with other services.

†All women and all races include whites, blacks and other races.

‡Difference between the marked row and the row below it is significant at p≤0.05 (e.g., white vs. black, <17 vs. ≥17, Hispanic vs. Non-Hispanic, etc.).

§Difference between the marked row and the row below it is significant at p≤0.10.

**Difference between private and clinic patients is significant at p≤0.05.

††Difference between visit "before conception" and visit "after pregnancy" is significant at p≤0.05.

‡‡Difference between visit "before conception" and visit "during pregnancy" is significant at p≤0.05.

Notes: Percentages add to more than 100 because many women received more than one service at first visit. Percentages in this table differ slightly from comparable percentages in Table 2 because of the exclusion of seven cases with inconsistent data in this table.

use or fit (21 percent vs. eight percent) and to be checked for method side effects (10 percent vs. two percent).

Some women whose first visit occurred after their first pregnancy may have been using nonprescription methods and did not need or seek checkups for method fit and side effects, or they may have postponed contraceptive use (perhaps out of fear of side effects).[28] Nevertheless, it is important to note that the services reported most frequently by women whose first visit occurred after pregnancy were birth control counseling and provision of a contraceptive method.

Although our analyses exclude women who reported having only a pregnancy test at their first family planning visit, it is of interest to consider the variety of services reported by women whose first visit occurred during pregnancy and who obtained services apart from, or in addition to, a pregnancy test. Women who made their first visit during their first pregnancy were in need of different services from women who were not pregnant. The former frequently needed a pregnancy test and appropriate counseling about an unwanted or mistimed pregnancy. The data shown in Table 5 confirm that first visits made during first pregnancies were much more likely than those made before first conceptions to include a pregnancy test and "other counseling," and were less likely to include birth control counseling.

Perhaps the most important service rendered at first visit is provision of a contraceptive method, and the service most often received is birth control counseling. To determine what factors influence these two measures, we performed multivariate multiple classification analyses of the proportions who began a method and who received birth control counseling, controlling for race, age at first visit, income and source of care. The analyses showed timing of the first family planning visit to have a large independent effect on the services women received. The results (not shown) indicate that women whose first visit occurred after their first pregnancy were significantly less likely than those whose first visit occurred before pregnancy to begin a method (39 percent vs. 55 percent) even after controlling for other variables. They were also less likely to receive birth control counseling (62 percent vs. 71 percent), although the difference was not statistically significant.

Timing of First Visits

The timing of first family planning visits is displayed in Table 6 by race and Hispanic origin. Women who had had intercourse but who had not made a family planning visit by the time of interview are included in the table; for these women, the delay between first intercourse and first visit is measured by the number of months between first intercourse and interview.

Overall, about 17 percent of sexually active women made their first family planning visit before first intercourse; 10 percent made their first visit the same month as first intercourse; 53 percent made their first visit after first intercourse but before interview; and 20 percent had not yet made a visit by the date of interview.

White women were significantly more likely than black women not to have made a family planning visit by the date of interview (21 percent vs. 14 percent). Hispanic women were more likely than non-Hispanic women to have never made a family planning visit (33 percent vs. 18 percent) and were less likely to have made a visit the same month as first intercourse (three percent vs. 10 percent).

We used a life-table procedure to examine the interval between first intercourse and first visit for the 73 percent of women whose first visit occurred after first intercourse or whose first visit had not occurred by the time of interview. The life-table technique allows us to use information from all women aged 15–24 who had ever had intercourse, including those who had not yet made a visit by the date of interview. Table 7 shows the cumulative probability (expressed in percentages) of having made a visit by a specified number of months since first intercourse. Separate life tables were run for white and black women, and for

Table 6. Number and percentage distribution of sexually active women aged 15–24 by timing of first family planning visit in relation to first intercourse, according to race, origin and interval between first and second intercourse

Characteristic	N	Timing of first visit				Total
		Before first intercourse	Same mo.	After first intercourse	No visit	
Total*	1,878	17.3	9.9	53.3	19.5	100.0
Race						
White	1,049	16.6	10.3	52.4	20.6‡	100.0
Black	792	22.3	7.5	56.6	13.6	100.0
Origin						
Hispanic	108	15.6	3.0‡	48.5	32.9§	100.0
Non-Hispanic	1,770	17.4	10.4	53.7	18.4	100.0
Interval between first and second intercourse†						
≤1 mo	787	19.8**	12.3	52.0	15.9	100.0
1–6 mo.	718	16.2	8.8	54.9	20.1	100.0
≥7 mo.	241	10.2	8.2	62.8	18.8	100.0

*Includes races other than white and black, women with missing data on interval between first and second intercourse and women who had not yet had second intercourse (not shown separately).

†Excludes women who had not had second intercourse by time of interview.

‡Difference by race and difference by origin are significant at p≤0.05.

§Difference by origin is significant at p≤0.10.

**Difference between "≤1" and "≥7 months" is significant at p≤0.05.

three categories of duration between first and second intercourse (less than one month, 1–6 months and seven or more months). The number of months between first and second intercourse is an indicator of the frequency of intercourse in the months immediately following first intercourse. It should, therefore, be one major determinant of the timing of the first family planning visit and is a rough indicator of the degree of exposure to the risk of unplanned pregnancy.

The median interval between first intercourse and first family planning visit was 23 months. By the end of nine months after first intercourse, the probability that a woman had made her first family planning visit was only 26 percent; by the end of 18 months, the probability of a visit was only 45 percent. Race differentials in the amount of time that elapsed between first intercourse and first family planning visit were minimal: The median interval between first intercourse and first visit was 23 months for white women and 24 months for black women.

Even among women whose second intercourse occurred within one month of first intercourse, the median delay to first visit was 19 months. Not surprisingly, however, women who waited seven or more months between first and second intercourse experienced a much longer median delay between first intercourse and first visit (29 months). Nevertheless, the median delay between *second* intercourse and first visit experienced by women who waited seven months or more between first and second intercourse was 22 months—not much longer than the delay for women who had second intercourse within a month of first intercourse.

Discussion

Our findings suggest that sexually active women in the United States often use their first family planning visit to learn about contraception. About half of them begin using a contraceptive method at first visit. However, three out of four young women (73 percent) delayed their first family planning visit until after their first intercourse. Our data suggest that most women do not begin using family planning services until well after they begin to have intercourse regularly or frequently, or when they fear that they are pregnant (see Tables 6 and 7).[29] Only 17 percent of young women made their first family planning visit before they began having intercourse. The apparent typical pattern, especially among black and Hispanic women, is to use no method at first intercourse and to begin using the pill or condom sometime *after* regular intercourse has begun.[30]

Clearly, family planning providers work under a considerable handicap, since nearly three-quarters of their patients wait an average of 23 months after first intercourse to begin using services. (The data available for this analysis did not identify any group of women who made timely use of family planning services). Why do women wait so long? Our data do not permit us to answer this question, but they do show that such delay pervades the experience of both white and black women and even those whose second intercourse occurs within a month of first intercourse.

A number of additional items could be included in future investigations so that subsequent analyses of delayed first visits would be more definitive. Among these variables are the frequency of intercourse before and after first visit; whether respondents used a contraceptive method before first visit, and if so, which method; whether respondents began a method at first visit, and if so, which method; and respondents' reasons for the timing of their first visits. In addition, since many of the factors that affect the timing of first family planning visits may be culturally, rather than indi-

Table 7. Cumulative probability (expressed in percentages)* of having a first family planning visit, by number of months since first intercourse, according to race and interval between first and second intercourse

No. of mo. elapsed since first intercourse	Race			Interval from first to second intercourse		
	All women 15–24	White	Black	<1 mo.	1–6 mo.	≥7 mo.
1	5.6	6.2	3.3	8.7	4.9	0.3
2	10.7	11.6	8.5	15.4	9.2	2.0
3	14.1	15.2	10.5	20.7	10.7	4.7
6	20.8	21.8	18.1	28.6	18.0	7.1
9	26.4	27.3	24.2	34.2	25.1	11.9
12	34.6	35.4	33.2	41.4	34.8	20.0
18	45.2	45.6	43.4	50.3	48.5	29.8
24	59.1	59.1	59.6	63.3	60.7	51.4
36	69.2	69.2	70.2	74.1	67.6	65.2
Median no. of mo. until first visit	23	23	24	19	20	29

*Based on life table analysis.

vidually, determined,[31] characteristics of communities and schools should also be investigated.

The 1988 cycle of the NSFG will expand our knowledge of first family planning visits in at least two important ways. First, women who received only a pregnancy test at first visit will be asked the date of the second visit, the provider they used and the services they received, so that their second visits can be included in future analyses of this kind. Second, respondents will be asked how they paid for their first visits.

Despite limitations, the data available have told us much that we need to know about first family planning visits, and they have confirmed or modified the findings of previous studies.[32] It is important to find the answers to these questions about first family planning visits, because women who delay these visits too long, or who fail to ask for appropriate services are, as one recent study put it, "risking their futures."[33]

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(Continued from page 19)

"regret the legal climate . . . that made it necessary for previous manufacturers to withdraw" their IUDs, the American College of Obstetricians and Gynecologists issued a statement declaring that the organization is "glad to see that women will once again have a choice" in selecting contraceptives.[8] Louise Tyrer, medical director of the Planned Parenthood Federation of America, echoed this reaction, noting that the availability of the TCu 380A "will greatly expand women's contraceptive options." She added that Planned Parenthood is "pleased that women for whom the IUD is the most appropriate method will have the opportunity to choose it."[9] Data on the previous copper-bearing IUDs show that they were the most effective IUDs available in the United States, but, she continued, "the 380A should be even better."

However, Tyrer pointed out that while the IUD is "most appropriate" for women who already have had at least one child, childless women who understand that there is a slightly elevated risk of PID and infertility associated with IUD use should not be precluded from choosing the TCu 380A.

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New Studies Find No Link Between Spermicide Use And Heightened Risk of Congenital Malformations

Spermicide use does not appear to be related to an elevated risk of birth defects, according to the results of two large case-control studies published recently. One investigation that centered on fetuses with trisomy[*] diagnosed prenatally found no statistically significant increase in risk among women who had used spermicides around the time of conception, during the first trimester of the pregnancy or at any time preceding the birth.[1] The other study, which examined the risk of trisomy 21 (Down syndrome) and a variety of congenital malformations, also found no relationship between the occurrence of these defects and maternal use of spermicides.[2] "The consistency of the findings in these two studies," note the authors of the second analysis, "offers reassurance regarding their validity, particularly since the studies were conducted by independent groups of investigators and were based on very different designs."

Research published in 1981 and 1982 had indicated that women who become pregnant while using spermicides (either alone or in conjunction with the diaphragm) might be at increased risk of having a baby with any of a number of defects, including Down syndrome, hypospadias,[†] limb reduction defects, neural tube defects and neoplasms.[3] The findings were questioned at the time, especially because the numbers of cases were very small; several subsequent studies demonstrated no evidence of such an effect, but these studies were small as well.[4] However, the question remains important, especially in view of the $4.7 million judgment awarded by a Georgia court in 1986 to the mother of a malformed infant believed to have been exposed to spermicides in utero.[5]

One study designed to examine this issue was conducted between June 1983 and June 1986 and involved 17 medical centers in the northeastern United States and in Canada.[6] Women who went to these centers for prenatal genetic testing were asked to complete a short questionnaire prior to their testing. Data were collected on various demographic characteristics, the women's obstetric histories, their smoking habits, the reason they were seeking a prenatal diagnosis and their use of contraceptives, including spermicides. Of 15,086 women who completed questionnaires, 1,357 never went on to have a prenatal test, either by choice or because they had a spontaneous abortion before the test could be given. Thus, results were available for 13,729 women who were tested. Seventy-eight percent of these women were seeking genetic testing because they would be 35 years of age or older at the projected date of delivery; an additional 13 percent had no known risk factor except for slightly elevated age but reported being anxious about the pregnancy; two percent each had previously given birth to a child afflicted with trisomy 21 or neural tube defects; and five percent gave other reasons.

Overall, 154 (one percent) of the women's fetuses were diagnosed as trisomic, including 98 who had trisomy 21. Another 100 had some other abnormal chromosomal arrangement, but these cases were not included in the study. A total of 13,475 fetuses had normal karyotypes; it was from their mothers that the control group was selected. The investigators intended to choose four controls for each case of trisomy. Mothers 30 or older were to be matched with two controls no more than 90 days older and two no more than 90 days younger; for those under 30, the four women closest in age (two older, two younger) were to be chosen as controls. However, a full set of controls could be found only for 135 cases; fewer controls were selected for another 16. Three cases were excluded from the study, one because she had entered it too late and two because they could be matched with no controls. The resulting sample consisted of 151 cases and 578 controls. Cases and controls did not differ significantly in parity, gravidity, race, education, birthplace or smoking status.

The participants were asked about their contraceptive use in the year prior to their last menstrual period, in the month before, in the month after and at the estimated time of conception. They also were requested to give a chronological history of their contraceptive use, which was compared with the other data to determine the reliability of the women's answers. Because they gave inconsistent information about their use of spermicides, four cases, their 16 matched controls and another 20 controls were excluded from the analysis. Among the remaining participants, 78 percent of those who had used spermicides had done so in conjunction with the diaphragm.

Eleven percent of women whose fetuses were diagnosed as trisomic had used spermicides either in the month before or after their last menstrual period or at the estimated time of conception, compared with 12 percent of controls. Twenty-five percent had used spermicides in the year prior to the last menstrual period, compared with 23 percent of controls. The investigators calculated odds ratios using a multiple regression analysis that controlled for age, race, smoking status, place of birth, education, gravidity and parity. The analysis revealed no statistically significant association between spermicide use and trisomy. In addition, the upper bounds of the 95 percent confidence intervals generally were less than two, indicating that the odds of there being even a twofold risk of trisomy associated with spermicide use around the time of conception are very small.

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[*] Trisomy is a condition in which an additional chromosome has joined one of the 23 pairs found in the normal human genome, with the result that there are 47 rather than 46 chromosomes. For example, in the case of trisomy 21 (Down syndrome), the most common of these chromosomal anomalies, an extra chromosome joins the normal 21st pair.

[†] Hypospadias is a male developmental anomaly in which sections of the walls of the urethra open through the underside of the penis.

The researchers conclude, "For all definitions of spermicide exposure examined, our data provide no evidence for an association with trisomy as determined at amniocentesis, either when all trisomies are considered together or when trisomy 21 is considered separately."

The second study of spermicides used data from a multicenter case-control study set up to examine the relationship between birth defects and prenatal exposure to a number of drugs and other agents.[7] Information on infants born with a variety of birth defects had been collected from admission and discharge records at 188 participating institutions, including pediatric referral hospitals, medical and surgical clinics and hospital-based neonatal nurseries in Greater Boston, Philadelphia, Toronto and eastern Iowa.

Eighty-seven percent of the women contacted agreed to participate, and all were interviewed in their homes within six months of childbirth. Among other data, the women were asked to provide a lifetime contraceptive history and also were asked about their beliefs regarding the causes of birth defects. In all, the mothers of 4,594 infants with birth defects were interviewed between January 1983 and June 1986.

Cases consisted of 265 infants with Down syndrome, 396 with hypospadias, 146 with limb reduction defects, 116 with neoplasms and 215 with neural tube defects. (Fourteen infants belonged to two or more of these groups.) The investigators divided each of these groups into subgroups by whether or not a defect might be genetic or familial. Those considered not to be genetic or familial were classified as being of unknown cause. The control group was made up of the remaining 3,442 infants who had experienced other types of defects. The researchers elected to use those infants as the control group because of the possibility that mothers of malformed babies may report their contraceptive histories differently than do mothers of normal infants.

The investigators analyzed the impact of spermicide use around the time of conception, in the first trimester of pregnancy and at any time prior to the pregnancy. Odds ratios were calculated using logistic regressions that controlled for the effects of the women's personal characteristics (age, education, religion and area of residence), their medical and reproductive histories (history of diabetes and hypertension, family history of the defect under study, smoking status during the pregnancy, planning status of the pregnancy, year of last menstrual period, parity and history of miscarriage), their suspicions about the teratogenicity of spermicides and their perception of the severity of the child's defect. Four women were excluded from the analysis because of missing information on parity. The analysis of hypospadias was restricted to male babies.

For each of the three intervals of spermicide use and the five categories of malformation studied, the odds ratio associated with spermicide use never surpassed 1.2, and generally was around 1.0. None of the odds ratios were significantly elevated. Further analyses of the subgroups in which the cause of the malformation was unknown proved little different, except that when spermicide use occurred during the first trimester, the odds ratio for limb reductions of unknown cause was 1.7; however, this was not significantly greater than 1.0.

No significant associations were found between any of the birth defects examined and duration of spermicide use (12 months or less, 13–36 months or 37 months or longer). Odds ratios were similarly low when analyses were conducted separately for users of spermicides containing octoxynol and nonoxynol, and they varied little by the mother's perception of the severity of her child's problem.

"The results of this study," the investigators comment, "suggest that the risks of five specific birth defects—Down syndrome, hypospadias, limb reduction defects, neoplasms and neural tube defects—are not increased by exposure to spermicide contraceptives in the first four months of pregnancy, at the time of conception, or at any time before conception."

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Pill Found to Have No Long-Term Latent Effect On Risk of Breast Cancer

A British study published late last year found that women who used the pill before a first full-term pregnancy and continued to use the method for four years or more were at significantly greater risk of developing breast cancer than were women who never used the pill.[1] This finding conflicted with those of several previous studies conducted in the United States and New Zealand.[2] The British investigators claimed that one reason for the differences in the findings could be that the earlier research had failed to consider the long latent period—the interval after prolonged pill use before a cancer is diagnosed.

However, a recent analysis of data from the Cancer and Steroid Hormone study (CASH), the largest U.S. study on cancer and the pill, fails to confirm the findings of the British study as to latency.[3] The CASH study involved interviews in 1980–1982 with a total of 4,744 women aged 20–54 at initial diagnosis of ovarian, endometrial or breast cancer; these cases were obtained from population-based cancer registries in eight areas of the United States. During the same period, the investigators interviewed 4,752 women who were free of the three study cancers, who were similar in age to the cases and who lived in the same geographic areas as the cases. To uncover any latent effect that might have been inadvertently concealed in earlier analyses, the investigators confined their analysis to the 4,714 cases who were aged 25–54 at diagnosis and to the 4,540 age-matched controls. (Women under 25 at diagnosis were excluded mainly because of the impossibility of their experiencing a long-term latent effect of pill use.) As expected, cases more frequently had a family history of breast cancer, an earlier age at menarche and lower parity than did controls. Among parous women, cases more frequently were older when they had their first birth and more commonly were premenopausal at diagnosis; they also were more likely than controls to have had surgery for benign breast disease. Cases and controls were quite similar in the duration of their pill use and in their age at first pill use.

The analysis found that the risk of breast cancer was not related to the potential latent period after pill use that preceded a first term pregnancy. For example, among the parous women in the sample who had taken the pill for 49–72 months before a first term pregnancy, the relative risk of developing breast cancer before age 55 was 0.7

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when the interval between the first term pregnancy and diagnosis was 0-4 years; it was 0.9 when the interval was 5–9 years; 1.0 for a 10–14-year interval; and 1.0 when the interval was 15 or more years.

There was also no suggestion of increased risk with increasing latency when age at first use was examined. Among women who had used the pill for 49–72 months before reaching the age of 25, for example, the relative risk was 1.2 when there was a 0–4-year interval from age 25 to the time of diagnosis; 1.2 when the interval was 5–9 years; and 0.9 when it was 15 years or more. Among those with at least 15 years' latency, the relative risk, according to duration of pill use before age 25, was 0.9 for 1–24 months of use, 1.1 for 25–48 months and 0.9 for 49–72 months.

According to the investigators, their findings "provide no support for the contention that use of [oral contraceptives] has a long-term latent effect on breast cancer risk." They concede that "breast cancer risk may [theoretically] be increased from use of OCs only after a very long latent interval." However, any adverse effect "would likely be revealed within 15 years of initial use, particularly among long-term users." Their analysis found no such effect. Nevertheless, because the numbers of women in long-duration and long-latency subgroups are small, the investigators recognize "the possibility of a small to moderate alteration in risk [as] still [being] compatible with the data," and urge that the continued surveillance of breast cancer risk is "both prudent and necessary."

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Recent U.S. Fertility Patterns Continue: Birthrates Climb Among Older Women, Childlessness Rises

The U.S. fertility rate for the 12 months preceding June 1986—70 births per 1,000 women 18–44 years of age—represented a slight increase over the same period in 1985, according to the latest report from the U.S. Bureau of the Census.[1] However, overall fertility trends in the United States continue as before: Comparatively large proportions of women are childless, many women with a recent birth are working and birthrates among older women are rising. One out of eight 40–44-year-old women are childless, compared with one in six 35–39-year-olds and one in four 30–34-year-olds. In fact, many more women now in their 30s are likely to be childless by the end of their reproductive years than had expected to be so when they were in their 20s. Half of recent mothers are in the labor force, and new mothers with four or more years of college education are the most likely to be working or looking for work. In addition, the 1986 birthrate for 30–34-year-olds of 79 per 1,000 was 40 percent higher than the comparable rate in 1976; the same general trend was apparent for 40–44-year-olds, who in 1986 gave birth at a rate almost 60 percent greater than that of 10 years before.

The Census Bureau collects monthly labor-force data through the Current Population Survey, a nationally representative sample of households drawn from census files and covering all 50 states plus the District of Columbia. A total of 32,481 women 18–44 years of age were interviewed in June 1986, when an annual supplement containing fertility-related questions was added; the women were also asked about their country of birth and their citizenship.

Patterns of Fertility

The U.S. fertility rate for the 12-month period ending in June 1986 was 70.3 births per 1,000 women 18–44 years of age, a slight but statistically nonsignificant rise from the 1985 rate of 68.6 births per 1,000. As in previous years, the birthrate was highest among 25–29-year-olds (113.6 births per 1,000), a rate relatively unchanged from that observed in 1976. However, in recent years, fertility has risen significantly among older women: The birthrate for 30–34-year-olds in 1986 was 78.9 per 1,000, up from 69.9 in 1985 and 56.4 in 1976. Although current fertility rates among older women are substantially lower, the same general trend was apparent. For example, among 40–44-year-olds, the birthrate climbed from 6.5 per 1,000 in 1976 to 10.2 per 1,000 in 1986.

Fertility was higher among women with fewer than 12 years of education (93.1 births per 1,000) than among those who finished high school but did not go on to college (71.0 per 1,000), those who attended college for 1–3 years (58.7 per 1,000) and those who went to college for four or more years (64.3 per 1,000). This trend is particularly clear for women under 30; however, among 30–44-year-olds, it is the better-educated women who have the higher fertility rates. For example, women aged 30–44 who received less than a high school education had a birthrate of 40.9 per 1,000, compared with a rate of 65.5 per 1,000 among those who completed college.

Birthrates were highest among women whose annual family income was less than $10,000 (95.3 births per 1,000) and lowest among those with a family income of $35,000 or more (55.4 per 1,000). However, income was clearly related to fertility only among the younger women. Thus, the birthrate for 18–24-year-olds with a family income under $10,000 was 141.6 births per 1,000, compared with a rate of only 79.2 among those with an annual income of $25,000–$29,999 and 34.1 among those with an annual income of $35,000 or more. In contrast, the fertility of those over 25 is slightly higher among women with higher incomes: Birthrates for 25–29-year-olds with a family income under $10,000 were 109.3 per 1,000, compared with 130.9 for those in the $25,000–$29,999 income bracket and 111.1 for those with an income of $35,000 or more.

The fertility rate for Hispanic women (105.6 births per 1,000) was significantly higher than that for non-Hispanics (67.3). Consequently, while Hispanic women represented eight percent of all women 18–44 years of age in 1986, they had 12 percent of all births during the 12-month period examined. The most important ethnic difference was in second births, which occurred at a rate of 76.5 per 1,000 women among Hispanics and 41.1 per 1,000 among non-Hispanics; there was no significant ethnic difference in the rate of first births (29.1 and 26.2 per 1,000, respectively).

Although black women had a somewhat

higher birthrate (78.4 compared with 68.2 births per 1,000) than white women, this finding was not consistent across age-groups. Black 18–24-year-olds, according to the report, had "considerably higher" fertility than comparable whites (113.7 and 83.1 per 1,000, respectively), but whites had slightly higher fertility in the 25–29 age-group (112.7 compared with 111.3 for blacks) and in the 30–44 age-group (43.2 compared with 41.9).

However, despite the similarity of birthrates among older whites and blacks, "sharp [racial] differences emerge in the timing of entry into motherhood," the authors of the report point out. For example, among 18–24-year-olds, 75 percent of whites were childless, compared with 57 percent of blacks. In addition, rates of first births among young black women were higher than those observed among young white women (53.3 and 46.2 per 1,000, respectively). In contrast, 22 percent of births among black 25–29-year-olds were first births, compared with 38 percent among whites in that age-group. Finally, the report points out that 49 percent of all births to black women in 1986 were nonmarital, four times the level found among white women (12 percent) and about twice that seen among Hispanics (23 percent).

The birthrate among foreign-born women in 1986 was 98.9 births per 1,000, substantially higher than that of native-born women (67.5 per 1,000). Compared with those born in the United States, foreign-born women under age 35 had especially higher fertility: The 18–24-year-olds had a birthrate of 140.0 per 1,000; 25–29-year-olds, 134.9; and 30–34-year-olds, 108.1. Thirty percent of all 18–44-year-old foreign-born women who had a birth in 1986 were from Mexico, and they gave birth at a substantially higher rate than did women born in Europe (141.9 and 54.2 per 1,000, respectively).

Other Differentials

Half of the women who gave birth between June 1985 and June 1986 were in the labor force at the time of the survey (44 percent employed and six percent looking for work). In contrast, 38 percent of new mothers were members of the labor force in 1980, as were 31 percent in 1976. Birthrates in 1986 were much higher among women who were not in the labor force (126.9 per 1,000) than among those who were (48.5 per 1,000), because the majority of women of reproductive age were either working or looking for work.

New mothers who had four or more years of college education were more likely to be in the work force than were those who never finished high school (59 percent compared with 32 percent). In addition, 53 percent of older women (those aged 30–44) with a recent birth were employed or looking for a job, compared with 46 percent of 18–24-year-olds. Rates of labor-force participation also were higher among women having their first birth than among those who had a second-order or higher order birth (57 percent compared with 46 percent). "Since a woman's labor-force participation is heavily dependent on securing child care services," the authors comment, "older mothers with higher incomes and greater job commitment or mothers with only one child may find it easier and more affordable to return to work."

About 50 percent of blacks and whites with newborns in 1986 were members of the labor force, a level representing a substantial increase from the 1976 level for whites (29 percent) but only a slight rise for blacks (from 43 percent). In addition, 51 percent of married women with newborns were in the work force, compared with 42 percent of single women. The proportion among married women did not vary by husband's occupation; the authors speculate that "labor-force participation by women with infants has become an expected part of family life, regardless of their [husbands'] occupational situation." The only groups of new mothers for which levels of labor-force participation have not increased significantly since 1976 have been single women and women whose husbands were not members of the labor force, although "these women . . . are probably most in need of a job to increase their family resources."

In 1986, 24 percent of 30–34-year-olds and 17 percent of 35–39-year-olds were childless, half again as many as the proportions observed 10 years earlier among comparable women. Among women 40–44, the rate of childlessness in 1986 was 13 percent, compared with 10 percent a decade earlier.

The report reveals that when women who were currently in the 40–44-year-old age cohort had been asked 10 years ago about their childbearing expectations, only nine percent had said that they expected to have no children. Thus, it appears that childlessness is more common among these women than they had expected it to be 10 years before. Moreover, 16 percent of women 30–34 years old were childless in 1976, but by 1986, 13 percent of this cohort was still childless. "Judging by the very small declines in childlessness experienced by [the cohort of] women who were 30–34 years old in 1976 and 40–44 years old in 1986 . . . , it seems unlikely that women currently in their 30s will approach the 10 percent level of childlessness [that] they expected in 1976."

Women 18–34 years of age who were asked about their fertility expectations in 1986 said they intended to have 2.1 children, on average. Forty-eight percent of the respondents expected to have two children, and only nine percent said they expected to remain childless, about the same as in 1976. (However, 26 percent either were uncertain about their expectations or did not answer the question, slightly more than was the case in 1976—22 percent.) Foreign-born 18–34-year-olds expected to have more children (a total of 2.3) than did native-born women (2.1). However, foreign-born 18–24-year-olds expected to have the same number of children as comparable native-born women (2.1). Childlessness was less common among foreign-born women than among the native-born (31 percent compared with 38 percent), and foreign-born 18–34-year-olds were somewhat less likely than comparable native-born women to say that they expected to remain childless (six percent compared with 10 percent). According to the authors of the report, "The lower proportions [of women] expecting to be childless and the higher fertility rates reported by foreign-born women . . . suggest that [they] will probably have more than a proportionate share of [the] children born annually in the United States in the immediate future."

Reference

1. U.S. Bureau of the Census, "Fertility of American Women: June 1986," *Current Population Reports*, Series P-20, No. 421, 1987.

Nearly 2.5 Million Visited PPFA for Reproductive Health Services in 1986

More than 2.4 million men and women received reproductive health care from affiliates of the Planned Parenthood Federation of America (PPFA) in 1986, according to Planned Parenthood's 1987 service report.[1] Another 1.4 million people took part in PPFA-sponsored educational programs and events. Two-thirds of all patients in 1986 were women seeking contraceptive services, and three-quarters of those who made a family planning visit received the pill. Almost 99,000 patients, representing about four percent of the total, obtained abortions. A total of 217,000 women had a pregnancy test at an affiliate, and 153,000 men and women went to PPFA clinics in

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1986 for one of the following services: diagnosis of sexually transmitted diseases; male health services; physical examinations; premarital exams; and diagnosis and treatment of a variety of conditions related to reproductive health.

In 1986, 187 PPFA affiliates operated 816 clinic sites around the United States. The 2.4 million men and women visiting those clinics for reproductive health care in 1986 represent a four percent increase from the 2.3 million who did so in 1985. Eighty-three percent of the 3.5 million medical visits to affiliate clinics in 1986 were for contraceptive services; seven percent were for pregnancy diagnosis and prenatal care; six percent, for diagnosis or treatment of an STD; and four percent, for abortion or abortion-related services. In addition, 1.4 million people took part in PPFA-sponsored educational programs and events, nearly 14 percent more than in 1985.

Sixty-six percent of Planned Parenthood patients (1.6 million people) were women seeking contraceptive services, a six percent increase over the number seen in 1985. Of these women, 707,000 were new patients, whereas 906,000 had been to an affiliate clinic at least once in the preceding year. PPFA's service report points out that 60 percent of those who made visits in 1985 returned for services in 1986, a retention rate higher than that in any of the previous 10 years.

Seventy-six percent of all clinic patients who made a family planning visit in 1986 obtained prescriptions for the pill, compared with five percent who obtained foam or condoms, five percent who were fitted with a diaphragm, one percent who received an IUD and three percent who obtained other methods. Ten percent received no method. The proportion of pill users among PPFA contraceptive patients has risen by six percent since 1983, while the proportions obtaining the diaphragm or condoms and foam have fallen by four percent and three percent, respectively. Relatively few men and women obtained sterilizations from PPFA affiliates: A total of 693 women were sterilized at such facilities, 19 percent fewer than in 1985. The number of vasectomies performed at PPFA affiliates has declined steadily from a high of 5,301 in 1984 to 4,330 in 1986.

The vast majority of patients who attended PPFA clinics in 1986 were under age 25: Thirty-eight percent were 20–24 years old and 34 percent were 19 or younger. Overall, 556,000 teenagers were family planning patients, an increase of 10 percent from 1985, and the number who were 17 or younger rose by almost 14 percent, from 227,000 to 258,000. Eighty-one percent of contraceptive patients were white, 13 percent were black and six percent were Native American.

A total of 217,000 women went to a PPFA facility for a pregnancy test in 1986. Almost 2,000 of those who were pregnant elected to start prenatal care with one of the 12 affiliates that offer such care, a 27 percent increase over the number in 1985. A total of 48 affiliates performed 98,638 abortions in 1986, an increase of eight percent from 1985. Teenagers represented 27 percent of all abortion patients at PPFA facilities, whereas 35 percent of abortion patients were 20–24 years of age, 21 percent were between 25 and 29 and 17 percent were 30 or older.

Sixty-nine percent of women who obtained abortions at PPFA affiliates were white and 23 percent were black; in 1985, the proportions were 72 percent and 21 percent, respectively. The number of abortions obtained by white patients rose by four percent, while the number among black patients climbed by 18 percent. The reason for much of the increase among black women appears to to be that Planned Parenthood of Metropolitan Washington began offering abortion services in 1986, and 56 percent of that affiliate's abortion patients were black.

Overall, PPFA facilities made about 339,200 referrals in 1986, 170,300 of them for one of a variety of health treatments or for health maintenance (primarily gynecologic care). Referrals for prenatal care rose by two percent between 1985 and 1986, from 62,000 to 63,400, and referrals for infertility diagnosis and treatment climbed 28 percent, from almost 2,300 to nearly 2,900. A total of 9,800 men and women were referred elsewhere for sterilizations, down from 10,400 in 1985. Almost 93,000 women were referred elsewhere for abortion services in 1986, a slight decrease from the 1985 figure (94,400 women).

Over one million patients (mostly contraceptive patients) were tested for gonorrhea in 1986; 1.4 percent tested positive. Of the 145,000 tested for syphilis, 0.5 percent tested positive. In addition, more than 1.4 million Pap smears were performed at PPFA facilities; 39,000 (three percent) showed some evidence of a condition requiring treatment or further examination. In addition, PPFA clinics saw 153,000 men and women in 1986 for the diagnosis of sexually transmitted diseases, for male health services (including testicular cancer screening), for physical examinations, for premarital exams and for diagnosis and treatment of a variety of conditions related to reproductive health. This total represents a 30 percent increase over 1985.

Reference

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Taiwan's FP Program Rated Best in Third World; UK Ranks First Among Large Developed Nations

Among developing countries, Taiwan has the best, and Laos the worst, national family planning program. Among the world's 15 most populous industrialized countries, the family planning program of the United Kingdom ranks first, and that of Romania ranks last. These rankings are the result of an international survey of access to birth control services carried out in 1987 by the Washington-based Population Crisis Committee (PCC).[1]

Developed countries were scored on a scale of zero to 30, and developing countries on a scale of zero to 100. In industrialized countries, the researchers looked at the availability of specific methods (including abortion and sterilization), at the overall accessibility of contraceptive services (especially for teenagers and the poor), at the provision of sex education in schools and at the status of contraceptive information and advertising. Scores of 25 or higher were rated excellent; those of 19–24, good; 10–18, fair; and 0–9, poor. The assessment of Third World family planning programs was somewhat more detailed, involving an attempt to measure overall governmental effort to make birth control services widely available. The categories representing program effort (which are based on the research of demographers W. Parker Mauldin and Robert J. Lapham[2]) included availability of methods, national budgets for family planning, training, record-keeping, administration, information and outreach and the involvement of the private

Table 1. Ranking of the family planning programs of the world's 15 most populous developed countries

Country and ranking	Score (out of 30)
Excellent	
United Kingdom	29
West Germany	28
Australia	27
Canada	27
France	27
Italy	27
United States	25
Good	
Czechoslovakia	23
East Germany	23
Yugoslavia	23
Poland	21
Spain	21
Japan	19
Fair	
USSR	11
Poor	
Romania	3

Table 2. Ranking of the family planning programs of developing countries that fall into the excellent, good and very poor categories

Country and ranking	Score (out of 100)
Excellent	
Taiwan	92
Singapore	90
South Korea	89
China	84
Hong Kong	84
Good	
Colombia	82
Sri Lanka	76
Panama	75
Cuba	72
Mexico	72
Thailand	72
El Salvador	71
Indonesia	67
Jamaica	66
Tunisia	65
Very Poor	
Afghanistan	12
South Yemen	12
Congo	11
Togo	11
Iran	11
Syria	11
Benin	10
Lesotho	10
Uganda	10
Burma	10
Yemen Arab Republic	10
Bolivia	9
Cameroon	9
Central African Rep.	8
Niger	8
Somalia	8
Malawi	7
Côte d'Ivoire	7
Mauritania	7
Kuwait	7
Guinea	6
Ethiopia	6
Burundi	6
Sudan	6
Iraq	6
Chad	5
Burkina Faso	4
Saudi Arabia	2
Libya	0
Kampuchea	0
Laos	0

sector. Scores for the developing countries were based on the data for 1982 that Mauldin and Lapham had collected; to reflect changes in program effort since 1982, a panel of experts adjusted the scores for 16 countries in 1987. The five rankings used to classify developing countries were excellent, good, fair, poor and very poor.

Developed-Country Programs

As Table 1 shows, none of the seven industrialized countries with program scores in the excellent range are in Eastern Europe, whereas only two of the countries in the three lower rankings are *not* in Eastern Europe (Spain and Japan). Family planning programs in most Eastern bloc countries are downgraded by the assessors because, although services are free, contraceptive supplies are often of poor quality and in short supply. Romania receives the lowest ranking because that country has made abortion illegal and restricts access to contraceptive services for most women, as part of a draconian pronatalist demographic policy.

The United States falls below six other developed countries because women there have fewer contraceptive options, as a result of the withdrawal of two leading IUDs from the U.S. market. In addition, the researchers found, the provision of both sex education in schools and family planning services for minors is uneven across the country.

Japan falls into a less-than-excellent grade because most contraceptive practice there involves use of the condom. Pill use is restricted by law,[3] and various types of IUDs are unavailable; sterilization is permitted only for married people with hereditary or mental illness or leprosy, or if pregnancy might endanger a woman's health.

Developing-Country Rankings

The researchers evaluated the family planning program effort of 95 developing countries. As Table 2 demonstrates, they found only five countries, all in Asia—China, Hong Kong, Singapore, South Korea and Taiwan—to have excellent programs. Scores for these countries range from 92 for Taiwan to 84 for China and Hong Kong. In fact, the PCC report comments, because men and women in these countries have as much access to birth control as couples in most industrialized countries, fertility rates there have fallen by 30–55 percent in the past 15 years.

In contrast, 31 countries rank as having very poor family planning programs (with scores from zero to 12). Nineteen of these countries are in Sub-Saharan or North Africa. Another 33 countries, 18 of them in Africa, are given a ranking of poor (scores of 13–39, not shown). The only African country to have escaped these low rankings is Mauritius (whose score of 60 places it in the fair category).

India—which, as the researchers point out, adds more people to the world every day than any other single country—receives a score of 64. Although this country was the first in the Third World to adopt a national family planning policy, "because of bureaucratic constraints and an emphasis on sterilization to the exclusion of other contraceptive options, only about a third of [Indian couples of reproductive age] practice family planning," the report points out.

The picture for Latin America and the Caribbean is more positive: About 90 percent of the population live in countries that offer some government support for family planning services. This situation represents a dramatic change from that of 20 years or so earlier, when most governments were hostile or indifferent to family planning. The programs of Colombia, Panama, Cuba, Mexico, El Salvador and Jamaica are all ranked as good, and a further seven countries in this region fall into the fair category (not shown).

The authors conclude their report by demonstrating that as the number of couples in developing countries who are in need of family planning climbs (to an estimated one billion by the year 2000), international funding for population programs is declining in real terms. Moreover, they note, "the poorest and least developed countries generally have . . . the greatest need for family planning services, and . . . are the least able to afford them."

References

1. Population Crisis Committee, *Access to Birth Control: A World Assessment*, Population Briefing Paper, No. 19, Washington, D.C., Oct. 1987.

2. R. J. Lapham and W. P. Mauldin, "Family Planning Program Effort and Birthrate Decline in Developing Countries," *International Family Planning Perspectives*, **10**:109, 1984.

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Patients at STD Clinics May Benefit if Facilities Also Offer Birth Control

Women who attended a sexually transmitted disease (STD) clinic appear to be at high risk of unintended pregnancy as well as infection, and might benefit if STD clinics offered a range of contraceptive services. According to a recent study of more than 500 women at an inner-city STD clinic, three-quarters had had at least one previous sexually transmitted infection, and one-third had been to the clinic at least once before in the previous year. However, only half were using a method of family planning, and just one-quarter were aware that some methods can reduce the user's risk of contracting an infection. The authors of the study point out that offering family planning services within STD clinics would carry a unique double message—emphasizing both protection against STDs and the prevention of pregnancy—and "may provide family planning opportunities to a subset of women at increased risk for STD and unintended pregnancy, who tend to underutilize available contraceptive services."[1]

From March through May 1986, 516 consecutive patients at the Baltimore City Health Department's Eastern Health District STD clinic were asked to answer a questionnaire administered by clinic health assistants who were similar to the patients in terms of age, race and ethnic background. The patients were treated according to a standard STD protocol that included obtaining a limited medical history, doing a pelvic examination, taking a culture for gonorrheal infection and doing a serologic test for syphilis infection and several other tests. In addition, a subsample of patients were tested for chlamydial infection. Pap smears, herpes cultures and pregnancy tests were given only when clinically indicated.

The patients' mean age was 22.5; 35 percent were 19 or younger, 34 percent were 20–24 and 31 percent were 25 or older. Almost all were black (94 percent) and unmarried (89 percent). Overall, 66 percent of the patients, including 51 percent of the teenagers, had been pregnant at least once. The women had first had intercourse at a mean age of 15.3, they averaged 2.3 acts of intercourse per week and they had had a mean of 1.2 sexual partners in the month preceding the interview.

When the women were asked why they had come to the clinic, 40 percent said that their partner was symptomatic and had referred them, 39 percent said that they themselves had experienced symptoms, 14 percent had come for a checkup, and seven percent, for follow-up or for some other reason. Seventy-six percent reported that they had had an STD at least once before. When the investigators examined clinic records, they found that 33 percent of the respondents (or 171 patients) had made a total of 308 STD-related visits to the clinic in the 12 months preceding the survey, and that 62 percent of those visits had resulted in an STD diagnosis.

At the time of the interview, 59 percent of the women were treated for an STD. Among those tested for each type of infection, 26 percent each were positive for gonorrhea and for chlamydia, 21 percent were found to have a trichomonas infection and seven percent tested positive for syphilis. (Some of these women had multiple infections.) The researchers point out that the level of positive gonorrhea tests—considered a general marker for overall STD morbidity—was one and one-half times as high as the national average (17 percent). Positive tests for chlamydial and gonorrheal infections were most common among teenagers (38 percent and 34 percent, respectively), trichomonas infections were found most often among 25–29-year-olds (26 percent), and syphilis occurred most often among women 30 or older (13 percent).

Information on contraceptive practice was collected for 83 percent of the 516 respondents; of the remainder, eight percent either were pregnant or wanted to become pregnant, two percent said that they had had a hysterectomy and seven percent had already enrolled in a special on-site contraceptive program. A total of 46 percent of the women who were queried about contraceptive use were not using a method at the time of the interview; nonuse was highest among adolescents (51 percent) and lowest among those over 30 (31 percent). However, 86 percent had used a method at some time; of the 58 women who had never used a method, 32 were teenagers and 18 were aged 20–24.

Overall, 62 percent of contraceptive users relied on the pill, 17 percent had been sterilized, nine percent used barrier methods or spermicides, eight percent used an IUD and the remainder depended on such methods as withdrawal, rhythm and douching. Among the patients aged 25 or younger, 78 percent used the pill, compared with 43 percent of 25–29-year-olds and 12 percent of those 30 or older. Fifty-six percent of those 30 or older had been sterilized. A total of 63 percent of contraceptive users had relied on their current method for a year or more. Fifty-seven percent of the women who were using a reversible method had obtained it from a family planning clinic, 29 percent had been to a hospital-based clinic, and the remaining 14 percent had obtained family planning services from a private physician, the health department or some other source.

When asked if they thought contraceptive methods could reduce the risk of acquiring an STD, only 26 percent of the women answered affirmatively. Nearly all of those women (96 percent) could identify the condom as one such method, but just 30 percent cited foam, and only 16 percent believed that the diaphragm could exert a protective effect. Nonetheless, 56 percent of current users said that they would be willing to use foam in addition to their regular method in order to prevent STDs.

Among the respondents who were nonsterile and who were neither pregnant nor seeking pregnancy and who were not enrolled in the pilot contraceptive project (387 in all), 51 percent said that they would be willing to obtain contraceptives from the STD clinic, and another five percent said that they might consider doing so. The younger women were more likely to respond positively than were the older women: Sixty-three percent of those under 19, 49 percent of 20–24-year-olds, 37 percent of 25–29-year-olds and 31 percent of women 30 or older said that they would or might be interested in getting contraceptives there. Among the women who were not using a method, 63 percent (including 80 percent of adolescent nonusers) said they would be interested in obtaining contraceptives at an STD clinic, whereas only 39 percent of current users said they would be interested in doing so.

In this population of STD patients, the researchers observe, they found "the expected high levels of STD and STD recurrence . . . with little understanding of the potential for contraceptive-related STD prophylaxis." However, because of the interest the respondents showed in obtaining contraceptives from an STD clinic, the Baltimore City Health Department has begun to provide family planning services at its STD clinics.

Reference

1. D. M. Upchurch et al., "Contraceptive Needs and Practices Among Women Attending an Inner-City STD Clinic," *American Journal of Public Health*, **77**:1427, 1987.

TRI-NORINYL® 21-Day Tablets (7 blue tablets of norethindrone 0.5 mg with ethinyl estradiol 0.035 mg, 9 green tablets of norethindrone 1.0 mg with ethinyl estradiol 0.035 mg, 5 blue tablets of norethindrone 0.5 mg with ethinyl estradiol 0.035 mg)

TRI-NORINYL® 28-Day Tablets (7 blue tablets of norethindrone 0.5 mg with ethinyl estradiol 0.035 mg, 9 green tablets of norethindrone 1.0 mg with ethinyl estradiol 0.035 mg, 5 blue tablets of norethindrone 0.5 mg with ethinyl estradiol 0.035 mg, 7 inert tablets)

BREVICON® 21-Day Tablets (norethindrone 0.5 mg with ethinyl estradiol 0.035 mg)

BREVICON® 28-Day Tablets (21 norethindrone 0.5 mg with ethinyl estradiol 0.035 mg tablets followed by 7 inert tablets)

NORINYL® 1 + 35 21-Day Tablets (norethindrone 1 mg with ethinyl estradiol 0.035 mg)

NORINYL® 1 + 35 28-Day Tablets (21 norethindrone 1 mg with ethinyl estradiol 0.035 mg tablets followed by 7 inert tablets)

NORINYL® 1 + 50 21-Day Tablets (norethindrone 1 mg with mestranol 0.05 mg)

NORINYL® 1 + 50 28-Day Tablets (21 norethindrone 1 mg with mestranol 0.05 mg tablets followed by 7 inert tablets)

NORINYL® 1 + 80 21-Day Tablets (norethindrone 1 mg with mestranol 0.08 mg)

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NORINYL® 2 mg Tablets (norethindrone 2 mg with mestranol 0.1 mg)

NOR-Q.D.® (norethindrone) Tablets 0.35 mg

ORAL CONTRACEPTIVE (O.C.) AGENTS

Indications Prevention of pregnancy. *DOSE-RELATED RISK OF THROMBOEMBOLISM* Because studies have shown a positive association between OC estrogen dose and risk of thromboembolism, it is prudent to minimize estrogen exposure. Prescribe an OC with the least amount of estrogen compatible with an acceptable pregnancy rate and patient acceptance. Start new users on OCs containing 0.05 mg or less of estrogen.

Contraindications 1. Known or suspected pregnancy (see Warning #5). 2. Thrombophlebitis or thromboembolic disorders. 3. Past history of deep vein thrombophlebitis or thromboembolic disorders. 4. Undiagnosed abnormal genital bleeding. 5. OCs should not be used by women who have or have had any of the following: a. cerebral vascular or coronary artery disease, including myocardial infarction; b. known or suspected carcinoma of the breast; c. known or suspected estrogen dependent neoplasia; d. benign or malignant liver tumor that developed during use of OCs or other estrogen containing products.

WARNINGS: Cigarette smoking increases the risk of serious cardiovascular side effects from OC use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use OCs should be strongly advised not to smoke.

The use of OCs is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, liver tumor, gall bladder disease, visual disturbances, fetal abnormalities, and hypertension. Practitioners prescribing OCs should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems.* An increased risk of thromboembolic and thrombotic disease associated with OC use is established. One study demonstrated an increased relative risk for fatal venous thromboembolism and several studies demonstrated it for non-fatal venous thromboembolism. They estimate that OC users are 4-11 times more likely than nonusers to develop these diseases without evident cause. One British study reported an excess death rate of 40% in OC users, most of which resulted from cardiovascular disease. Another British study showed a lower death rate in OC users than controls; an increase in cardiovascular deaths was seen but was not statistically significant. A U.S. prospective study failed to disclose increased mortality rates from cardiovascular disorders, but a subset analyzed as a retrospective case-control study showed significant increases in venous thromboembolism. CEREBROVASCULAR DISORDERS. Two American studies demonstrated an increased relative risk for stroke not shown in prior British studies. In an American study of cerebrovascular disorders in women with and without predisposing causes, relative risk of hemorrhagic stroke was estimated as 2.0 times greater and thrombotic stroke as 4-9.5 times greater in users than nonusers. A British long-term follow-up study reported in 1976 a highly significant association between OC use and stroke. Another study had suggested an association in 1974, but the number of cases was too small to estimate the risk. Subarachnoid hemorrhage has been shown to be increased by OC use in British and American studies. Smoking alone increases incidence of these accidents; smoking and pill use appear to increase risk more than either alone.

MYOCARDIAL INFARCTION (MI). Increased relative risk of MI associated with OC use has been reported. One British study found that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia) the higher the risk of developing MI, regardless of OC use. OCs were an additional risk factor. In terms of relative risk, it has been estimated that nonsmoking OC users (smoking is considered a major predisposing condition to MI) are twice as likely to have a fatal MI as nonsmoking nonusers. OC users who are smokers have a 5-fold increased risk of fatal infarction compared to nonsmoking users, and a 10-12-fold increased risk compared to nonsmoking nonusers. The number of cigarettes smoked is important. In determining the importance of these relative risks, baseline rates for various age groups must be considered. (Estimates are based on British vital statistics which show acute MI death rates 2-3 times less than in the U.S., so U.S. death rates could be higher.) Importance of other predisposing conditions in determining relative and absolute risks has not been quantified; other synergistic actions may exist. RISK OF DOSE. Using data from several national adverse reaction reporting systems, British investigators concluded that risk of thromboembolism, including coronary thrombosis, is directly related to estrogen dose in OCs. OCs with 0.1 mg or more of estrogen were associated with a higher risk of thromboembolism than those containing 0.05-0.08 mg, but quantity of estrogen may not be the sole factor. This was supported by a U.S. study. A British study found a positive association between dose of progestogen or estrogen and certain thromboembolic conditions. Swedish authorities noted decreased reporting of thromboembolic episodes when higher estrogen preparations were no longer prescribed. Careful epidemiological studies to determine degree of thromboembolic disease risk associated with progestogen-only OCs have not been done. Thromboembolic disease has been reported in women using these products, and they should not be considered free of excess risk. PERSISTENCE OF RISK. Two studies have suggested an increased risk may persist for 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI; another study suggested the persistence of risk for subarachnoid hemorrhage. ESTIMATE OF EXCESS MORTALITY FROM CIRCULATORY DISEASES. A large British prospective study estimated mortality rate per 100,000 women per year from circulatory system diseases for OC users and nonusers according to age, smoking habits, and duration of use. The overall annual excess death rate for OC users was estimated to be 20/100,000 (ages 15-34 – 5/100,000; ages 35-44 – 33/100,000; ages 45-49 – 140/100,000). Risk is concentrated in long-term users and in smokers, and may persist after OC discontinuation. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all occurred in women 35 or older. An update provided the following rates: ages 15-34 – 1/6700 for nonsmokers and 1/2000 for smokers; ages 45 and over – 1/2500 for nonsmokers and 1/500 for smokers. Risk appeared to increase with parity, but not with duration of use. Until more women under 35 with continuous use for 5 or more years are available, it is not possible to assess relative risk for this age group. Data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. Estimates include combined risk of the contraceptive method (e.g., thromboembolic and thrombotic disease for OCs) plus risk attributable to pregnancy or abortion if the method fails (which varies with the effectiveness of the contraceptive method). The study concluded that mortality associated with all contraceptive methods is below that of childbirth, except for OCs in women over 40 who smoke. (Rates given for pill only/smokers for each age are for smokers as a class. For "heavy" smokers (more than 15 cigarettes a day), the rates would be about double; for "light" smokers (less than 15), about half.) The lowest mortality is with the condom or diaphragm backed up by early abortion. The study also concluded that OC users who smoke, especially over 30, have greater mortality risk than OC users who do not smoke.

Risk of thromboembolic and thrombotic disease associated with OCs increases with age after 30 and, for MI, is further increased by hypertension, hyperlipidemias, obesity, diabetes, or history of preeclamptic toxemia, and especially by smoking. The following chart gives a gross estimate of risk of death from circulatory disorders associated with OC use.

SMOKING HABITS AND OTHER PREDISPOSING CONDITIONS—RISK ASSOCIATED WITH USE OF OCs

Age	Below 30	30-39	40 +
Heavy smokers	C	B	A
Light smokers	D	C	B
Nonsmokers (no predisposing conditions)	D	C,D	C
Nonsmokers (other predisposing conditions)	C	C,B	B,A

A—Use associated with very high risk
B—Use associated with high risk
C—Use associated with moderate risk
D—Use associated with low risk

Physician and patient should be alert to earliest manifestations of thromboembolic and thrombotic disorders (e.g., thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). Should any of these occur or be suspected, discontinue OC immediately. A 4-6 fold increased risk of post-surgery thromboembolic complications has been reported in OC users. If feasible, discontinue OCs at least 4 weeks before surgery associated with increased risk of thromboembolism or prolonged immobilization. Before resuming OC after major surgery or bedrest, balance risks of post-surgery thromboembolic complications with contraceptive needs. Data suggest varicose veins substantially increase risk of superficial venous thrombosis of the leg, the risk depending on the severity of the varicosities. 2. *Ocular Lesions.* Neuro-ocular lesions such as optic neuritis or retinal thrombosis have been associated with OC use. Discontinue OC if there is unexplained, sudden or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma.* Long-term continuous administration of natural or synthetic estrogen in certain animals increases certain tumors, benign or malignant, such as breast, cervix, vagina, uterus, ovary, pituitary and liver. Certain synthetic progestogens, none currently in OCs, increase the incidence of mammary nodules, benign and malignant, in dogs. Several retrospective case-control studies reported an increased relative risk (3.1-13.9 times) associating endometrial carcinoma with the prolonged use of estrogens in postmenopausal women. One publication reported the first 30 cases submitted to the registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the adenocarcinomas found in women without predisposing risk factors for adenocarcinoma of the endometrium (e.g., irregular bleeding when OCs were first given, polycystic ovaries), nearly all occurred in women who had used sequential OCs, which are no longer marketed. No statistical association has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs, although individual cases have been reported. Studies have shown no increased risk of breast cancer to OC or estrogen users. One study found no overall increased risk of breast cancer in OC users but a greater risk was suggested for OC users with documented benign breast disease and for long-term (2-4 years) users. Another study found a history of breast cancer among grandmothers or aunts was significantly more frequent among breast cancer patients who had used an OC continuously for one or more years than among nonusers with breast cancer. One other study indicated an increasing risk of breast cancer in women taking menopausal estrogens, which increased with duration of follow-up. One author suggests that extended (over 6 years) OC use prior to first full term pregnancy was associated with a significant relative risk of breast cancer. A reduced occurrence of benign breast tumors in OC users has been well documented. One study reported malignant melanoma more frequently in OC users than controls and suggests an increased incidence of urinary tract and thyroid cancers. A prospective study of women with cervical dysplasia found an increase in severity and conversion to cancer *in situ* in OC users compared to nonusers. This became statistically significant after 3-4 years of use. Nonreversal of dysplasia within the first 6 months of pill use was suggested to predict progression after prolonged exposure. One study disclosed an increased risk of cancer of the cervix (largely carcinoma *in situ*) in OC users under 40, particularly those who had used OCs over 4 years. There have been other reports of microglandular hyperplasia of the cervix in OC users. One study reported an association between OC use and endocervical adenocarcinoma. In summary, there is no confirmed evidence from human studies of increased risk of cancer associated with OCs. Close clinical surveillance of all OC users is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, take appropriate diagnostic measures to rule out malignancy. Monitor OC users with a strong family history of breast cancer or who have breast nodules, fibrocystic disease or abnormal mammograms with particular care. 4. *Liver Tumors.* Sudden severe abdominal pain or shock may be due to rupture and hemorrhage of a liver tumor. There have been reports associating benign or malignant liver tumors with short-term and long-term OC use. One study reported use of OCs with high hormonal potency and age over 30 may further increase risk of hepatocellular adenoma. Two studies relate risk with duration of use, risk being much greater after 4 or more years of use. Long-term OC users have an estimated annual incidence of hepatocellular adenoma of 3-4/100,000. Although an uncommon lesion, it should be considered in women presenting with an "acute abdomen." The tumor may cause serious or fatal hemorrhage. Patients with liver tumors have demonstrated variable clinical features which may make preoperative diagnosis difficult. Some cases presented because of right upper quadrant masses, while most had signs and symptoms of acute intraperitoneal hemorrhage. Routine radiological and laboratory studies may not be helpful. Liver scans may show a focal defect. Hepatic arteriography may be useful in diagnosing primary liver neoplasm. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring.* Use of female sex hormones – estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. Females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated to be of the order of 1/1000 exposures or less. Although there is no evidence that OCs further enhance the risk of developing this type of malignancy, such OC users should be monitored with particular care. A high percentage of women exposed to diethylstilbestrol (30-90%) have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are a precursor of vaginal malignancy. Male children so exposed may develop urogenital tract abnormalities. Although similar data are not available on other estrogens, it cannot be presumed that they would not induce similar changes. Increased risk of congenital anomalies, including heart and limb defects, has been reported following use of sex hormones, including OCs, in pregnancy. One case-control study estimated a 4.7-fold increased relative risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some exposures involved only a few days of treatment. Data suggest risk of limb-reduction defects in exposed fetuses is somewhat less than 1/1000 live births. In a large prospective study, cardiovascular defects in children born to women who received female hormones, including OCs, during early pregnancy occurred at 18.2/1000 births, compared to 7.8/1000 for children not so exposed *in utero*. These results are statistically significant. A Welsh study found a statistically significant excess of neural tube defects among offspring of prior OC users (within 3 months) than among controls. The incidence of twin births may be increased for women who conceive shortly after discontinuing OC use. In the past, female sex hormones were used during pregnancy in an attempt to treat threatened or habitual abortion. There is evidence that estrogens are ineffective, and there is no evidence from well controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. If the patient has not adhered to the prescribed schedule, consider possible pregnancy at the first missed period (or 45 days from the last menstrual period if progestogen-only OCs are used) and discontinue OC use until pregnancy has been ruled out. For any patient who has missed two consecutive periods, rule out pregnancy before continuing the OC. If pregnancy is confirmed, tell the patient about potential risks to the fetus and discuss advisability of continuing the pregnancy. Women who discontinue OCs to become pregnant should use an alternate form of contraception for a period of time before attempting to conceive. A 3-month period is supported by a study suggesting increased frequency of neural tube defects in women impregnated during the first 3 months after cessation of OC use. Do not use progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding as a pregnancy test. 6. *Gall Bladder Disease.* Studies report increased risk of gall bladder disease in OC or estrogen users. In one study an increased risk appeared after 2 years of use and doubled after 4-5 years. In another study an increased risk was apparent between 6 and 12 months. 7. *Carbohydrate and Lipid Metabolic Effects.* Because a decrease in glucose tolerance has been observed in a significant percentage of patients on OCs, prediabetic and diabetic OC users should be carefully observed. An increase in triglycerides and total phospholipids has been observed in OC users but its clinical significance is unknown. 8. *Elevated Blood Pressure.* An increase in blood pressure has been reported with OC use. Hypertension may occur within a few months of beginning OCs. In the first year of use, incidence of hypertension may be no higher in OC users than in nonusers. Incidence in users increases with exposure and in the fifth year of use is 2.5-3 times that in the first year. Age is strongly correlated with hypertension in OC users. Women with a history of elevated blood pressure (hypertension), preexisting renal disease, history of toxemia or elevated blood pressure during pregnancy, familial tendency to hypertension or its consequences, or history of excessive weight gain or fluid retention during the menstrual cycle may be more likely to develop elevated blood pressure when given OCs and should be monitored closely. Even though elevated blood pressure may remain within the "normal" range, closely watch elevations, particularly for women with other risk factors for cardiovascular disease or stroke. High blood pressure may or may not persist after OC discontinuation. 9. *Headache.* Discontinue OC and evaluate the cause of onset or exacerbation of migraine or development of a new pattern of headache which is recurrent, persistent or severe. 10. *Bleeding Irregularities.* Breakthrough bleeding, spotting, and missed menses often make users discontinue OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, consider nonfunctional causes. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, use adequate diagnostic measures to rule out pregnancy or malignancy. If pathology has been excluded, time or another formulation may solve the problem. While potentially useful in minimizing menstrual irregularity, change to an OC with a higher estrogen content only if necessary since this may increase the risk of thromboembolic disease. Women with a history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may tend to remain anovulatory or to become amenorrheic after OC discontinuation. Women with these preexisting problems should be advised of this and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may occur in women without previous irregularities. A higher incidence of galactorrhea and of pituitary tumors (e.g., adenomas) has been associated with amenorrhea in former users compared with nonusers. One study reported a 16-fold increased incidence of pituitary prolactin-secreting tumors among patients with postpill amenorrhea when galactorrhea was present. 11. *Infertility.* There is evidence of impairment of fertility in women discontinuing OCs in comparison with other contraceptive methods, which appears to be independent of duration of use. While impairment diminishes with time, there is an appreciable difference in the results in nulliparous women for OC and other groups 30 months after discontinuation of birth control. For parous women the difference is not apparent 30 months after cessation of contraception. 12. *Ectopic Pregnancy.* Ectopic as well as intrauterine pregnancy may occur in OC failure. In progestogen-only OC failures, the ratio of ectopic to intrauterine pregnancies is higher than in nonusers, since the drugs are more effective in preventing intrauterine than ectopic pregnancies. 13. *Breast Feeding.* OCs in the postpartum period may interfere with lactation by decreasing quantity and quality of breast milk. A small fraction of OC hormonal agents has been identified in milk of mothers receiving OCs. Effects, if any, on the breast-fed child have not been determined. If feasible, defer OC use until the infant has been weaned.

Precautions GENERAL 1. Take a complete medical and family history before starting OCs. Pretreatment and periodic physical exams should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant lab tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical. 2. Under the influence of estrogen-progestogen preparations, preexisting uterine leiomyomata may enlarge. 3. Observe patients with a history of psychic depression and discontinue OCs if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the OC and use an alternate method of contraception to determine whether the symptom is drug related. 4. OCs may cause some fluid retention. Prescribe with caution, and only with careful monitoring, in patients with conditions that might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma or cardiac, hepatic or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence while using OCs. Discontinue OC if jaundice develops. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution in such patients. 7. OC users may have disturbances in normal tryptophan metabolism that may result in a relative pyridoxine deficiency. The clinical significance is unknown. 8. Serum folate levels may be depressed by OC use. Since the pregnant woman is predisposed to folate deficiency and incidence of folate deficiency increases with increasing gestation, if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and related complications. 9. Advise the pathologist of OC use when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs. For example: a. Increased sulfobromophthalein retention. b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability. c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered. d. Decreased pregnanediol excretion. e. Reduced response to metyrapone test. f. Increased phospholipids and triglycerides. g. Temporarily decreased glucose tolerance. 11. Contact lens wearers who develop visual changes or changes in lens tolerance should be assessed by an ophthalmologist and temporary or permanent cessation of wear considered. DRUG INTERACTIONS. OCs may be less effective and there may be increased breakthrough bleeding from interactions with rifampin, isoniazid, ampicillin, tetracycline, neomycin, penicillin V, chloramphenicol, sulfonamides, nitrofurantoin, barbiturates, phenytoin, primidone, analgesics, tranquilizers, antimigraine preparations, antihistamines, and griseofulvin. OCs may alter effectiveness of such other drugs as oral anticoagulants, anticonvulsants, tricyclic antidepressants, antihypertensive agents (e.g., guanethidine), vitamins, hypoglycemic agents, tranquilizers, hypnotic preparations, theophylline, and beta blockers. *CARCINOGENESIS* See Warnings. *PREGNANCY* Pregnancy category X. See Contraindications and Warnings. *NURSING MOTHERS* See Warnings.

Adverse Reactions An increased risk of the following serious adverse reactions has been associated with OC use (see Warnings): thrombophlebitis, thrombosis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, mesenteric thrombosis, liver tumors, cerebral hemorrhage, hypertension, gall bladder disease, congenital anomalies, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis, Raynaud's disease, arterial thromboembolism. The following adverse reactions have been reported in OC users and are believed to be drug related: bleeding irregularities (breakthrough bleeding, spotting, missed menses during treatment, amenorrhea after treatment), gastrointestinal symptoms (nausea, vomiting, bloating, abdominal cramps, colitis), dysmenorrhea, infertility after discontinuance of treatment, edema, chloasma or melasma which may persist after drug is discontinued, breast changes (tenderness, enlargement, and secretion), intolerance to contact lenses, changes in corneal curvature (steepening), change in weight (increase or decrease), change in cervical erosion and cervical secretion, possible diminution of lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, prolactin-secreting pituitary tumors, chilblains. The following adverse reactions have been reported in OC users and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of hair, erythema multiforme, erythema nodosum, hemorrhagic eruptions, vaginitis, porphyria, impaired renal function, malignant nephrosclerosis (hemolytic uremic syndrome), malignant hypertension, acute renal failure. **Information for the Patient** (See Patient Package Insert.)

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Family Planning
Perspectives
Volume 20, Number 2, March/April 1988

Pregnancy, Contraception & Family Planning Services In Developed Countries

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LOESTRIN® Fe

(1.5 mg norethindrone acetate and 30 mcg ethinyl estradiol tablets, USP)

Before prescribing, please see full prescribing information. A Brief Summary follows:
INDICATIONS AND USAGE: Loestrin is indicated for the prevention of pregnancy in women who elect to use OCs as a method of contraception. **Dose-Related Risk of Thromboembolism from Oral Contraceptives:** Two studies have shown a positive association between the dose of estrogens in OCs and the risk of thromboembolism. For this reason, it is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The OC product prescribed for any given patient should be that product containing the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance. It is recommended that new acceptors of OCs be started on preparations containing 0.05 mg or less of estrogen. **CONTRAINDICATIONS:** OCs should not be used in women with any of the following conditions: 1. Thrombophlebitis or thromboembolic disorders; 2. A past history of deep vein thrombophlebitis or thromboembolic disorders; 3. Cerebral vascular or coronary artery disease; 4. Known or suspected carcinoma of the breast; 5. Known or suspected estrogen-dependent neoplasia; 6. Undiagnosed abnormal genital bleeding; 7. Known or suspected pregnancy (see Warning No. 5); 8. Benign or malignant liver tumor that developed during the use of OCs or other estrogen-containing products.

WARNINGS

> **Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.**
>
> The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems:* An increased risk of thromboembolic and thrombotic disease associated with the use of OCs is well established. Three principal studies in Great Britain and three in the US have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic. These studies estimate that users of OCs are 4 to 11 times more likely than nonusers to develop these diseases without evident cause. **Cerebrovascular Disorders:** In a collaborative American study of cerebrovascular disorders in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than in nonusers and the risk of thrombotic stroke was 4 to 9.5 times greater in users than in nonusers. **Myocardial Infarction:** An increased risk of MI associated with the use of OCs has been reported, confirming a previously suspected association. These studies, conducted in the UK, found, as expected, that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia), the higher the risk of developing MI, regardless of whether the patient was an OC user or not. OCs, however, were found to be a clear additional risk factor. In terms of relative risk, it is estimated that OC users who do not smoke (smoking is considered a major predisposing condition to MI) are about twice as likely to have a fatal MI as nonusers who do not smoke. OC users who are also smokers have about a 5-fold increased risk of fatal infarction compared with users who do not smoke, but about a 10- to 12-fold increased risk compared with nonusers who do not smoke. Furthermore, the amount of smoking is an important factor. In determining the importance of these relative risks, however, the baseline rates for various age groups must be given serious consideration. The importance of other predisposing conditions mentioned above in determining relative and absolute risks has not yet been quantified; it is quite likely that the same synergistic action exists, perhaps to a lesser extent. **Risk of Dose:** In an analysis of data derived from several national adverse reaction reporting systems, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in OCs. Preparations containing 100 mcg or more of estrogen were associated with a higher risk of thromboembolism than those containing 50 to 80 mcg of estrogen. Their analysis did suggest, however, that the quantity of estrogen may not be the sole factor involved. This finding has been confirmed in the US. **Persistence of Risk:** In confirmation of earlier reports, two studies have suggested that an increased risk may persist for as long as 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI. In addition, one prospective study suggested the persistence of risk for subarachnoid hemorrhage. **Estimate of Excess Mortality from Circulatory Diseases:** A large prospective study carried out in the UK estimated the mortality rate per 100,000 women per year from diseases of the circulatory system for users and nonusers of OCs according to age, smoking habits, and duration of use. The overall excess death rate annually from circulatory diseases for OC users was estimated to be 20 per 100,000 (ages 15 to 34 – 5/100,000; ages 35 to 44 – 33/100,000; ages 45 to 49 – 140/100,000), the risk being concentrated in older women, in those with a long duration of use, and in cigarette smokers. It was not possible, however, to examine the interrelationships of age, smoking, and duration of use, nor to compare the effects of continuous versus intermittent use. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all of these deaths occurred in women 35 or older. Until larger numbers of women under 35 with continuous use for 5 or more years are available, it is not possible to assess the magnitude of the relative risk for this younger age group. The available data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. The estimates of risk of death for each method include the combined risk of the contraceptive method (eg, thromboembolic and thrombotic disease in the case of OCs) plus the risk attributable to pregnancy or abortion in the event of method failure. This latter risk varies with the effectiveness of the contraceptive method. The study concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of OCs in women over 40 who smoke. The lowest mortality is associated with the condom or diaphragm backed up by early abortion. The risk of thromboembolic and thrombotic disease associated with OCs increases with age after approximately age 30 and, for MI, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preeclamptic toxemia and especially by cigarette smoking. The physician and the patient should be alert to the earliest manifestations of thromboembolic and thrombotic disorders (eg, thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). If any of these occurs or is suspected, the drug should be discontinued immediately. A 4- to 6-fold increased risk of postsurgical thromboembolic complications has been reported in OC users. If feasible, OCs should be discontinued at least 4 weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization. 2. *Ocular Lesions:* There have been reports of neuro-ocular lesions, such as optic neuritis or retinal thrombosis, associated with the use of OCs. Discontinue OC medication if there is unexplained, sudden or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma:* Long-term continuous administration of either natural or synthetic estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver. Certain synthetic progestogens, none currently contained in OCs, have been noted to increase the incidence of mammary nodules, benign and malignant, in dogs. In humans, three case control studies have reported an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women. One publication reported on the first 21 cases submitted by physicians to a registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the cases found in women without predisposing risk factors for adenocarcinoma of the endometrium (eg, irregular bleeding at the time OCs were first given, polycystic ovaries), nearly all occurred in women who had used a sequential OC. These products are no longer marketed. No evidence has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs. Several studies have found no increase in breast cancer in women taking OCs or estrogens. One study, however, while also noting no overall increased risk of breast cancer in women treated with OCs, found an excess risk in the subgroups of OC users with documented benign breast disease. A reduced occurrence of benign breast tumors in users of OCs has been well documented. In summary, there is at present no confirmed evidence from human studies of an increased risk of cancer associated with OCs. Close clinical surveillance of all women taking OCs is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms should be monitored with particular care if they elect to use OCs. 4. *Hepatic Tumors:* Benign hepatic adenomas have been found to be associated with the use of OCs. One study showed that OC formulations with high hormonal potency were associated with a higher risk than lower potency formulations. Although benign, hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage. This has been reported in short-term as well as long-term users of OCs. Two studies relate risk with duration of use of the contraceptive, the risk being much greater after 4 or more years of OC use. While hepatic adenoma is a rare lesion, it should be considered in women presenting with abdominal pain and tenderness, abdominal mass or shock. A few cases of hepatocellular carcinoma have been reported in women taking OCs. The relationship of these drugs to this type of malignancy is not known at this time. 5. *Use in or Immediately Preceding Pregnancy; Birth Defects in Offspring, and Malignancy in Female Offspring:* The use of female sex hormones – both estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. It has been shown that females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been demonstrated to be of the order of 1 in 1,000 exposures or less. Although there is no evidence at the present time that OCs further enhance the risk of developing this type of malignancy, such patients should be monitored with particular care if they elect to use OCs. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether this condition is a precursor of vaginal malignancy. Male children so exposed may develop abnormalities of the urogenital tract. Although similar data are not available with the use of other estrogens, it cannot be presumed that they would not induce similar changes. An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of sex hormones, including OCs, in pregnancy. One case control study has estimated a 4.7-fold increase in risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 in 1,000 live births. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. It is recommended that for any patient who has missed two consecutive periods, pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule, the possibility of pregnancy should be considered at the time of the first missed period, and further use of OCs should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuation of the pregnancy should be discussed in the light of these risks. It is also recommended that women who discontinue OCs with the intent of becoming pregnant use an alternate form of contraception for a period of time before attempting to conceive. Many clinicians recommend 3 months although no precise information is available on which to base this recommendation. The administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy. 6. *Gallbladder Disease:* Studies report an increased risk of surgically confirmed gallbladder disease in users of OCs and estrogens. In one study, an increased risk appeared after 2 years of use and doubled after 4 or 5 years of use. In one of the other studies, an increased risk was apparent between 6 and 12 months of use. 7. *Carbohydrate and Lipid Metabolic Effects:* A decrease in glucose tolerance has been observed in a significant percentage of patients on OCs. For this reason, prediabetic and diabetic patients should be carefully observed while receiving OCs. An increase in triglycerides and total phospholipids has been observed in patients receiving OCs. The clinical significance of this finding remains to be defined. 8. *Elevated Blood Pressure:* An increase in blood pressure has been reported in patients receiving OCs. In some women, hypertension may occur within a few months of beginning OC use. In the first year of use, the prevalence of women with hypertension is low in users and may be no higher than that of a comparable group of nonusers. The prevalence in users increases, however, with longer exposure, and in the fifth year of use is two and a half to three times the reported prevalence in the first year. Age is also strongly correlated with the development of hypertension in OC users. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure when given OCs. Hypertension that develops as a result of taking OCs usually returns to normal after discontinuing the drug. 9. *Headache:* The onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of OCs and evaluation of the cause. 10. *Bleeding Irregularities:* Breakthrough bleeding, spotting and amenorrhea are frequent reasons for patients discontinuing OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, nonfunctional causes should be borne in mind. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy. If pathology has been excluded, time or a change to another formulation may solve the problem. Changing to an OC with a higher estrogen content, while potentially useful in minimizing menstrual irregularity, should be done only if necessary since this may increase the risk of thromboembolic disease. Women with a past history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of OCs. Women with these preexisting problems should be advised of this possibility and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may also occur in women without previous irregularities. 11. *Ectopic Pregnancy:* Ectopic as well as intrauterine pregnancy may occur in contraceptive failures. 12. *Breast-Feeding:* OCs given in the postpartum period may interfere with lactation. There may be a decrease in the quantity and quality of the breast milk. Furthermore, a small fraction of the hormonal agents in OCs has been identified in the milk of mothers receiving these drugs. The effects, if any, on the breast-fed child have not been determined. If feasible, the use of OCs should be deferred until the infant has been weaned. **PRECAUTIONS: General:** 1. A complete medical and family history should be taken prior to the initiation of OCs. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical examination. 2. Under the influence of estrogen-progestogen preparations preexisting uterine leiomyomata may increase in size. 3. Patients with a history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the medication and use an alternative method of contraception in an attempt to determine whether the symptom is drug related. 4. OCs may cause some degree of fluid retention. They should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma, or cardiac or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence of jaundice while receiving OC therapy. If jaundice develops in any patient receiving such drugs, the medication should be discontinued. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution. 7. OC users may have disturbances in normal tryptophan metabolism which may result in a relative pyridoxine deficiency. The clinical significance of this is undetermined. 8. Serum folate levels may be depressed by OC therapy. Since the pregnant woman is predisposed to the development of folate deficiency and the incidence of folate deficiency increases with increasing gestation, it is possible that if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and complications attributed to this deficiency. 9. The pathologist should be advised of OC therapy when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs: a. Increased sulfobromophthalein retention; b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability; c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG, free T4 concentration is unaltered; d. Decreased pregnanediol excretion; e. Reduced response to metyrapone test. **INFORMATION FOR THE PATIENT:** See Patient Labeling. **DRUG INTERACTIONS:** Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin. **CARCINOGENESIS, PREGNANCY, NURSING MOTHERS:** See Contraindications and Warnings. **ADVERSE REACTIONS:** An increased risk of the following serious adverse reactions has been associated with the use of OCs: Thrombophlebitis; pulmonary embolism; coronary thrombosis; cerebral thrombosis; cerebral hemorrhage; hypertension; gallbladder disease; benign hepatomas; congenital anomalies. There is evidence of an association between the following conditions and the use of OCs, although additional confirmatory studies are needed: Mesenteric thrombosis; neuro-ocular lesions, eg, retinal thrombosis and optic neuritis. The following adverse reactions have been reported in patients receiving OCs and are believed to be drug related: Nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10 percent or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally: Gastrointestinal symptoms (such as abdominal cramps and bloating); breakthrough bleeding; spotting; change in menstrual flow; dysmenorrhea; amenorrhea during and after treatment; temporary infertility after discontinuance of treatment; edema; chloasma or melasma which may persist; breast changes: tenderness, enlargement and secretion; change in weight (increase or decrease); change in cervical erosion and cervical secretion; possible diminution in lactation when given immediately postpartum; cholestatic jaundice; migraine; increase in size of uterine leiomyomata; rash (allergic); mental depression; reduced tolerance to carbohydrates; vaginal candidiasis; change in corneal curvature (steepening); intolerance to contact lenses. The following adverse reactions have been reported in users of OCs, and the association has been neither confirmed nor refuted: Premenstrual-like syndrome; cataracts; changes in libido; chorea; changes in appetite; cystitis-like syndrome; headache; nervousness; dizziness; hirsutism; loss of scalp hair; erythema multiforme; erythema nodosum; hemorrhagic eruption; vaginitis; porphyria; hemolytic uremic syndrome. **ACUTE OVERDOSE:** Serious effects have not been reported following acute ingestion of large doses of OCs by young children. Overdosage may cause nausea, and withdrawal bleeding may occur in females. **HOW SUPPLIED:** Loestrin **21** 1/20 is available in compacts each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1/20 is available in compacts each containing 21 white tablets and 7 brown tablets. Each white tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills. Loestrin **21** 1.5/30 is available in compacts each containing 21 tablets. Each tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1.5/30 is available in compacts each containing 21 green tablets and 7 brown tablets. Each green tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills.

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Family Planning

Perspectives

ISSN 0014–7354
Volume 20, Number 2, March/April 1988

Published bimonthly by
The Alan Guttmacher Institute
at 111 Fifth Avenue
New York, N.Y. 10003.

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Inquiries about advertising should be addressed to Nicholas Publishing, 139 Harristown Rd. Glenrock, N.J. 07452 Tel. 201-670-7755.

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Second-class postage paid at New York, N.Y., and additional mailing offices. Postmaster: Send address changes to Family Planning Perspectives, 111 Fifth Avenue, New York, N.Y. 10003.

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Editorial

Not Just Teenagers

By Jeannie I. Rosoff

This issue is devoted to an Alan Guttmacher Institute (AGI) study of how the United States compares with 19 other Western democracies in rates of births, abortions and pregnancies—especially unintended pregnancies—and contraceptive use. The study also examines how contraceptive use in these countries is affected by their public policies and programs related to reproduction and family planning. The focus is on adults; the study thus extends a previous AGI comparison of developed countries that had examined the reproductive and contraceptive behavior of adolescents. In that investigation, the AGI researchers had found that U.S. teenagers have much lower rates of contraceptive use and much higher rates of childbearing, abortion and pregnancy than do adolescents in other developed countries, even though the levels of adolescent sexual activity appear to be quite similar in all of the countries studied.[1] What the new study shows is that this contrast in behavior not only appears among American adolescents but shows up as well among older U.S. women, especially those in their 20s.

For example, although its birthrate is only a little above the average for the group, the United States has one of the highest pregnancy rates of the 20 countries investigated; indeed, the rate is lower than only those of Greece and Ireland. Reflecting this elevated pregnancy rate are the country's very high abortion rate and high level of unintended births. Both the U.S. rates of abortion *and* unintended births are about five times those of the Netherlands, which is at the bottom of the range. Because so many U.S. women resort to contraceptive sterilization before they turn 30, the contrast between the United States and the other countries is especially marked among women under age 25.

Compared with most of the other countries, the United States has a low level of contraceptive use—especially use of the two most effective reversible methods, the pill and the IUD (even before the IUD was removed from the U.S. market). Furthermore, U.S. women are more likely than those in most of the other countries to report using no method at all.

What are some of the reasons for these contrasts?

- Typically, contraceptive care is integrated into the primary health services of the countries, making it available at many convenient and familiar locations. Not so in the United States.
- In many of the countries where the use of effective contraceptive methods is high and pregnancy and abortion rates are low, contraceptive care is delivered mainly through family physicians rather than medical specialists. These family physicians are especially likely to prescribe oral contraceptives, the most effective reversible method. In the United States—where pill use is lower than in most of the other countries examined and pregnancy and abortion rates are high—contraceptive services are delivered largely by medical specialists (obstetrician-gynecologists). These specialists are distributed unevenly geographically and charge more for their services than do family physicians.
- Family planning clinics in most of the countries other than the United States are meant to serve primarily first-time contraceptive users (usually young people) and other groups (such as immigrants), who may require special counseling, evening or weekend hours, female clinic personnel or a wide range of method choices. In contrast, U.S. clinics are designed primarily to provide free or subsidized services to people too poor to purchase contraceptive care from private physicians. Many U.S. women who attend clinics would prefer to go to a private doctor for family planning services, but cannot afford to do so. Others who could benefit from the personal counseling or other special arrangements offered by clinics may find such facilities unattractive in the belief that they provide a lower standard of medical care. In other countries, the choice of a clinic or doctor is determined by the needs of the patient; in the United States, it is determined by the patient's financial resources.
- A narrower range of contraceptive methods is available in the United States than in many of the other countries. Not only has the loss of most IUDs restricted the choices of U.S. couples, but methods available elsewhere—like the morning-after pill, the steroidal implant, injectable steroids, the cervical cap, new and presumably safer pill formulations, and more easily reversible means of tubal sterilization—are not yet marketed in the United States, partly because of liability considerations and partly because of the controversy surrounding abortion.
- In most of the countries studied, but not in the United States, contraceptives are available to everyone for free or at very low cost.
- There is considerably greater dissemination of information about contraception and sexuality in some of the other countries, through advertising, publicity, education in the schools or enlistment of pharmacists as distributors of appropriate literature. Use of the condom, the most effective of the nonprescription methods (and the only method that is also effective in preventing STDs, including AIDS) tends to be more widespread in the countries where this method is widely advertised.

Thus, family planning services in the United States are more expensive, are less conveniently located and are provided in less familiar settings than they are in many other developed countries, where pregnancy and abortion rates are lower. A finding of both the current research and the earlier study of teenagers is that use of the most effective methods is greater in countries where there is the broadest dissemination of information about contraceptive methods and about the locations where they can be obtained. Such information is both provided and assimilated much more easily where open, tolerant attitudes toward sex prevail.

Reference

1. E. F. Jones et al., *Teenage Pregnancy in Industrialized Countries*, Yale University Press, New Haven, 1986.

Jeannie I. Rosoff is president of The Alan Guttmacher Institute.

Unintended Pregnancy, Contraceptive Practice And Family Planning Services In Developed Countries

By Elise F. Jones, Jacqueline D. Forrest, Stanley K. Henshaw,
Jane Silverman and Aida Torres.

Introduction

There have been numerous studies of the organization and availability of family planning services, and their relationship with contraceptive use and with fertility and pregnancy in developing countries. Few such studies, however, have been done for industrialized countries. A cross-national study conducted by The Alan Guttmacher Institute (AGI), which examined adolescent sexual experience, contraceptive use and pregnancy, showed that U.S. teenagers had much higher rates of childbearing, abortion and pregnancy than did adolescents in most other developed countries, even where levels of adolescent sexual activity appeared to be quite similar.[1] The study suggested that better contraceptive practice in the other countries might be accounted for partly by the fact that contraceptive services in those countries were widely available, confidential and free or very inexpensive, and the fact that realistic and timely information about sexuality and contraception was provided through the schools or the media.

The U.S. system for delivering family planning services differs from the systems of other Western countries in ways that make it less conducive, on the whole, to the promotion of highly effective contraceptive methods.

This article summarizes the results of a new study by the AGI that seeks to determine whether the differences found between the United States and other developed countries with regard to adolescents are also seen among adults, and to explore more deeply the role of the family planning service delivery system.[2] Specifically, this article examines the relationships between fertility, pregnancy—especially unintended pregnancy—and contraceptive use, and between contraceptive use and public policies and programs related to family planning during the period 1982–1986.

Nineteen developed countries were selected as the most appropriate setting for comparisons with the United States.* The countries are all those of Western Europe along with Australia, Canada and New Zealand. The study excludes the countries of Eastern Europe and societies such as Japan, which differ substantially from the United States in their social, economic and demographic backgrounds.

Public activities related to family planning—laws and policies, arrangements for service delivery and dissemination of information—are considered in this analysis as they affect contraceptive use, and contraceptive use is examined for the way it affects fertility in general, and unintended pregnancy in particular. Thus, contraceptive use is seen as determined by public policies and programs and as determining fertility and pregnancy. The analysis draws on the results of fertility surveys and other published and unpublished data, as well as on material from a new survey undertaken as part of the present investigation. Problems of comparability and other limitations of the data are taken into account insofar as possible, but emphasis has been deliberately placed on making maximum use of all of the relevant information.

The work plan was divided into two main parts: an overview analysis of the experience of all 20 countries, followed by detailed case studies of four of the countries—the United States, Canada, Great Britain and the Netherlands.

Elise F. Jones is a senior research associate, Jacqueline D. Forrest is vice president for research, Stanley K. Henshaw is deputy research director and Jane Silverman and Aida Torres are senior research associates, all with The Alan Guttmacher Institute. The authors gratefully acknowledge the assistance of James Wheatley of the Institute staff with all of the research involved in this study. They also wish to thank Charles F. Westoff and Noreen Goldman of Princeton University and Jeanne I. Rosoff, Richard Lincoln and Deirdre Wulf of the Institute for their constructive advice and criticism.

The study would not have been possible without the cooperation of numerous institutions and individuals. The authors are especially grateful to the liaison persons in the case-study countries, who contributed generously of their time and effort. They are Connie Clement in Ontario, Marthe Riopel Lefebvre in Quebec, Marianne C. Dersjant-Roorda in the Netherlands and Zandria Pauncefort in the United Kingdom. Extensive assistance was obtained in assembling data from the various fertility surveys: Statistics Sweden gave permission to use a data tape fr[illegible]e 1981 Swedish Fertility Study; the Cent[illegible] of Statistics in the Netherlands made [illegible]idged data tape from the 1982 Neth[illegible] survey; the United Nations Economic Commission for Europe provided access to its master file of data from surveys in Belgium, Denmark, Finland, France, Italy, Norway, Spain and other countries; T.R. Balakrishnan of the University of Western Ontario and Maire Ni Bhrolchain of the Center for Population Studies at the London School of Hygiene and Tropical Medicine ran special tabulations from surveys in Canada and the United Kingdom; Robert L. Cliquet of the Population and Family Study Center in Belgium, Haris Symeonidou of the Center of Social Research in Greece and Karen Dunnell of the Office of Population Censuses and Surveys in the United Kingdon provided unpublished tabulations from surveys in those countries. Detailed tabulations of births and female populations for many countries were made available by Gérard Calot of the Institut National d'Etudes Démographiques in Paris.

The authors are grateful to the Office of Population Affairs of the U.S. Department of Health and Human Services, which provided a substantial part of the funding for the research upon which this article is based. However, the opinions expressed herein are those of the authors and should not be construed as representing the opinions or policies of any agencies of the U.S. government.

*Australia, Austria, Belgium, Canada, Denmark, Finland, France, West Germany, Greece, Ireland, Italy, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom (the data are sometimes for Great Britain or England and Wales).

Table 1. Total fertility rate (TFR), total abortion rate (TAR), total pregnancy rate (TPR) and abortion ratio in 17 industrialized countries

Country	Year*	TFR	TAR	TPR	Abortion ratio†
Australia	1980	1.89	0.40	2.29	17.5
Belgium	1979	1.70	0.29	1.99	14.6
Canada	1982	1.68	0.36	2.04	17.6
Denmark	1982	1.42	0.58	2.00	29.0
Finland	1982	1.72	0.38	2.10	18.1
France	1982	1.92	0.63	2.55	24.7
Germany, West	1983	1.33	0.31	1.64	18.9
Great Britain	1982	1.76	0.34	2.10	16.2
Greece	1981	2.09	2.24	4.33	51.7
Ireland	1981	3.08	0.15	3.23	4.6
Italy	1983	1.53	0.80	2.33	34.3
Netherlands	1982	1.50	0.18	1.68	10.7
New Zealand	1982	1.92	0.26	2.18	11.9
Norway	1983	1.66	0.46	2.12	21.7
Sweden	1983	1.61	0.54	2.15	25.1
Switzerland	1982	1.55	0.50	2.05	24.4
United States	1983	1.80	0.76	2.56	29.7

*Year of most recent abortion data. †Total abortion rate as a percentage of the total pregnancy rate.

The study includes all women of reproductive ages 15 through 44. Two age subgroups have been singled out for special attention: The age-group 20–29 was selected to represent the earlier part of the reproductive cycle and the age-group 35–44, the later part. Teenagers were not examined separately, partly because this age-group had been covered in detail in the comparison of adolescents referred to earlier.[3]

Levels of Fertility, Abortion and Pregnancy

Table 1 displays the total fertility rates, total abortion rates, total pregnancy rates and abortion ratios* of the 17 countries for which these measures could be computed. Two countries stand out from the others. Greece and Ireland are the only countries where the total pregnancy rate exceeds three pregnancies per woman. Moreover, in addition to having a high fertility rate, Greece has the highest abortion rate and ratio of any country in the table. Ireland is an equally exceptional case, with by far the highest fertility rate and the lowest abortion rate.

The pregnancy, birth and abortion rates of the remaining 15 countries are scattered within a relatively narrow range; these countries might thus be taken collectively as representing the mainstream of Western experience. The United States has the highest total pregnancy rate in this group—2.6 pregnancies per woman—and a relatively high rate of abortion. At the low end of the range for pregnancy rates are West Germany and the Netherlands, with rates of 1.6 and 1.7, respectively. Both the abortion rate and the abortion ratio are highest in Italy (0.8 abortions per woman and 34 percent, respectively), followed by the United States (0.8 and 30 percent); and both measures are lowest in the Netherlands (0.2 and 11 percent). All of the English-speaking countries except the United States (Australia, Canada, Great Britain and New Zealand) have relatively low abortion ratios. On the other hand, the abortion ratio tends to be high in the Scandinavian countries. Total fertility rates range from 1.3 children per woman in West Germany to 1.9 in France and New Zealand. The U.S. rate of 1.8 births per woman falls a little above the average for the group.

Ten of the 20 countries in the study† have data on births that were unplanned—that is, they occurred sooner than desired or were not wanted at all. For all of these countries except the Netherlands and Great Britain, it is also possible to distinguish those unplanned births that were unwanted ever. The questions used to determine planning status varied substantially, however, from survey to survey, and it is not clear how these differences might have affected the results. Fertility and pregnancy rates by planning status have been estimated by applying retrospective survey data from currently married women on the proportions of births that were unplanned and unwanted ever to current levels of fertility and abortion for all women regardless of marital status.‡

Table 2 shows the total planned pregnancy rate,§ the total unplanned pregnancy rate, the total pregnancy rate and the ratio of the unplanned pregnancy rate to the total pregnancy rate for the countries with data on births by planning status.** When Spain is excluded, the range from the highest planned pregnancy rates (1.4 in Great Britain, the Netherlands and Sweden) to the lowest (1.0 in Finland) just exceeds 0.3. The unplanned pregnancy rates vary considerably more; there is a difference of just over one pregnancy per woman between the highest unplanned pregnancy rates (1.4 in France, 1.3 in the United States) and the lowest (0.3 in the Netherlands). There is a slight negative association between the planned and unplanned pregnancy rates, due presumably to the fact that an unplanned pregnancy which leads to a birth that is wanted, but at a later time, preempts a later planned pregnancy.

Even though the Netherlands has one of the higher planned pregnancy rates, its overall pregnancy rate is extremely low because there are so few unplanned pregnancies—only 17 percent of pregnancies are unplanned. In contrast, more than half of all pregnancies are unplanned in Finland, France and the United States.

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*The total fertility rate is the average number of children, the total abortion rate is the average number of abortions and the total pregnancy rate is the average number of pregnancies (i.e., births plus abortions) that a woman would have, assuming a continuation of current age-specific rates over her reproductive lifetime. Reasonably reliable data on abortions according to age are available for Canada, Denmark, Finland, Great Britain, the Netherlands, New Zealand, Norway, Sweden and the United States. Carefully substantiated estimates of the numbers of abortions by age are available for Belgium and France. For Ireland, recorded abortions in England obtained by Irish residents are used; these represent a minimum figure. Plausible estimates of the overall level of abortion are available for Australia, West Germany, Greece, Italy and Switzerland. The abortion ratios have been calculated as the total abortion rate divided by the total pregnancy rate times 100; thus, they differ from the more conventionally computed ratio of the number of abortions to the number of births.

†Belgium, Canada, Denmark, Finland, France, Great Britain, the Netherlands, Spain, Sweden and the United States.

‡Since it was our purpose in the study to evaluate the relationship of fertility and pregnancy rates to contraceptive use as observed in the fertility surveys, we used fertility and abortion data for the calendar year following the survey or, in a few cases, the closest available year. The data on births according to planning status necessarily refer, however, to the period before the survey, an obvious shortcoming of this approach. The distribution of births according to planning status for women aged 20–29 had to be estimated from data for women aged 25–34.

§Because miscarriages are excluded from the estimates of pregnancy rates, the planned pregnancy rate is identical to the planned fertility rate.

**The pregnancy rate for a given country may differ from that shown in Table 1, since the time reference is not necessarily the same.

Table 2. Total planned pregnancy rate, total unplanned pregnancy rate, total pregnancy rate (TPR) and ratio of total unplanned pregnancy rate to TPR, for year after each fertility survey

Country	Year	Total planned pregnancy rate	Total unplanned pregnancy rate	TPR	Ratio of total unplanned pregnancy rate to TPR
Belgium*	1977	1.17	0.83	2.00	41.5
Canada†	1985	1.24	0.79	2.03	38.9
Denmark	1976	1.32	1.18	2.50	47.2
Finland	1978	1.03	1.06	2.09	50.7
France	1979	1.18	1.35	2.53	53.4
Great Britain	1977	1.35	0.63	1.98	31.8
Netherlands	1983	1.37	0.28	1.65	17.0
Spain	1978	2.35	u	u	u
Sweden	1982	1.39	0.80	2.19	36.5
United States	1983	1.25	1.31	2.56	51.2

*Abortion estimate is for 1979. †Abortion estimate is for 1982.

Note: In this table and Table 6, u = unavailable.

Contraceptive Use

Most of the data on contraceptive practice are taken from fertility surveys that were carried out between 1975 and 1985 in 16 of the 20 countries.[*] All of the surveys were national in scope except those in Belgium, which represent only the Flemish population. In addition, although the Greek survey covered the whole country, the results available are limited to the population of Greater Athens. Above and beyond the national surveys, other sources have been used to supplement and evaluate the results of the fertility surveys and to assess contraceptive use in the four countries that have not had national surveys (Australia, West Germany, Ireland and New Zealand).

The discussion in the present analysis centers mainly around the three most effective methods of contraception: male and female sterilization, the pill and the IUD. These modern medical methods currently account for the greater part of contraceptive use in a large majority of developed countries.

An assessment of the overall pattern of contraceptive use among all women aged 15–44 can be made with a fair degree of confidence for each of the 20 countries. This measure takes into account both a rough approximation of the overall level of use of effective methods and the predominant method. The distribution of countries according to pattern of use is shown in Table 3 (page 58). Although there is considerable variation, it is notable that in half of the countries, use of the most effective methods is very widespread and the pill is the principal method used. Sterilization is the most common method employed in the two North American countries and, apparently, also in Switzerland. Both of the countries where the IUD predominates are in Scandinavia. Use of the modern, highly effective methods seems to be relatively low in Ireland, as it is in all of the Southern European countries, including Greece—the only country where fewer than 10 percent of women of reproductive age rely on a highly effective method.

A variety of more specific measures were developed for the 16 countries with survey data. Those used in the analysis are the proportion of women using any method, the combined proportion using one of the three effective methods and the proportions using selected individual methods. Three age-groups are covered: 15–44, 20–29 and 35–44. Since the Austrian and Swiss surveys were limited to recently married women, the measures are available only for younger women in those two countries. All of the measures are categorical in form, distinguishing "high," "medium" and "low" levels of contraceptive use. The categorization was accomplished by examining the distributions of the relevant estimated proportions of women, with a view to maximizing the contrast between categories and at the same time achieving the best balance among them; inevitably, some decisions were quite arbitrary.

The level of use of any method of contraception is fairly high everywhere, so that there is little contrast between the categories. (Among women aged 15–44, the mean percentages using any method are 65 percent, 60 percent and 50 percent in the high, medium and low categories, respectively.) The United States, where 54 percent of women of reproductive age use some method, falls into the low category along with Portugal and Spain.

The range in use of effective methods is much greater, and there are substantial differences among the categories (the means are 52 percent, 37 percent and 15 percent). The United States falls into the medium-use category, with 37 percent of women using one of the three effective methods, largely because of widespread use of sterilization. In general, sterilization appears to be more acceptable in the English-speaking countries and less acceptable in the Scandinavian and Catholic countries. It is very prevalent (but is not necessarily the most common method) in Canada, Great Britain, the Netherlands and the United States—the four case-study countries, where the average proportion of women aged 15–44 who have been sterilized is 21 percent. Only in Canada and the United States, however, do substantial proportions of couples resort to sterilization while the female partner is still in her 20s. The proportion of married women using the pill tends to be very much lower at ages 35–44 than at ages 20–29, although it remains an important method at older ages in several countries.[†] Use of the IUD is widespread in the Scandinavian countries other than Denmark and is rather low elsewhere. The pattern of variation in use of the condom is similar to that for the IUD, but condom use is common also in Greece and Great Britain. Four percent of U.S. women were using the IUD and seven percent were using the condom at the time of the survey, placing the United States in the low-use category in both cases.

Fertility, Pregnancy and Method Use

This section focuses on the relationship between fertility, pregnancy and the use of effective contraceptive methods. The analysis is limited to the countries with survey data on contraceptive use. The comparisons of abortion and pregnancy rates are based on countries for which abortion data are also available. Comparisons involving pregnancy intentions are further restricted

(Continued on page 58)

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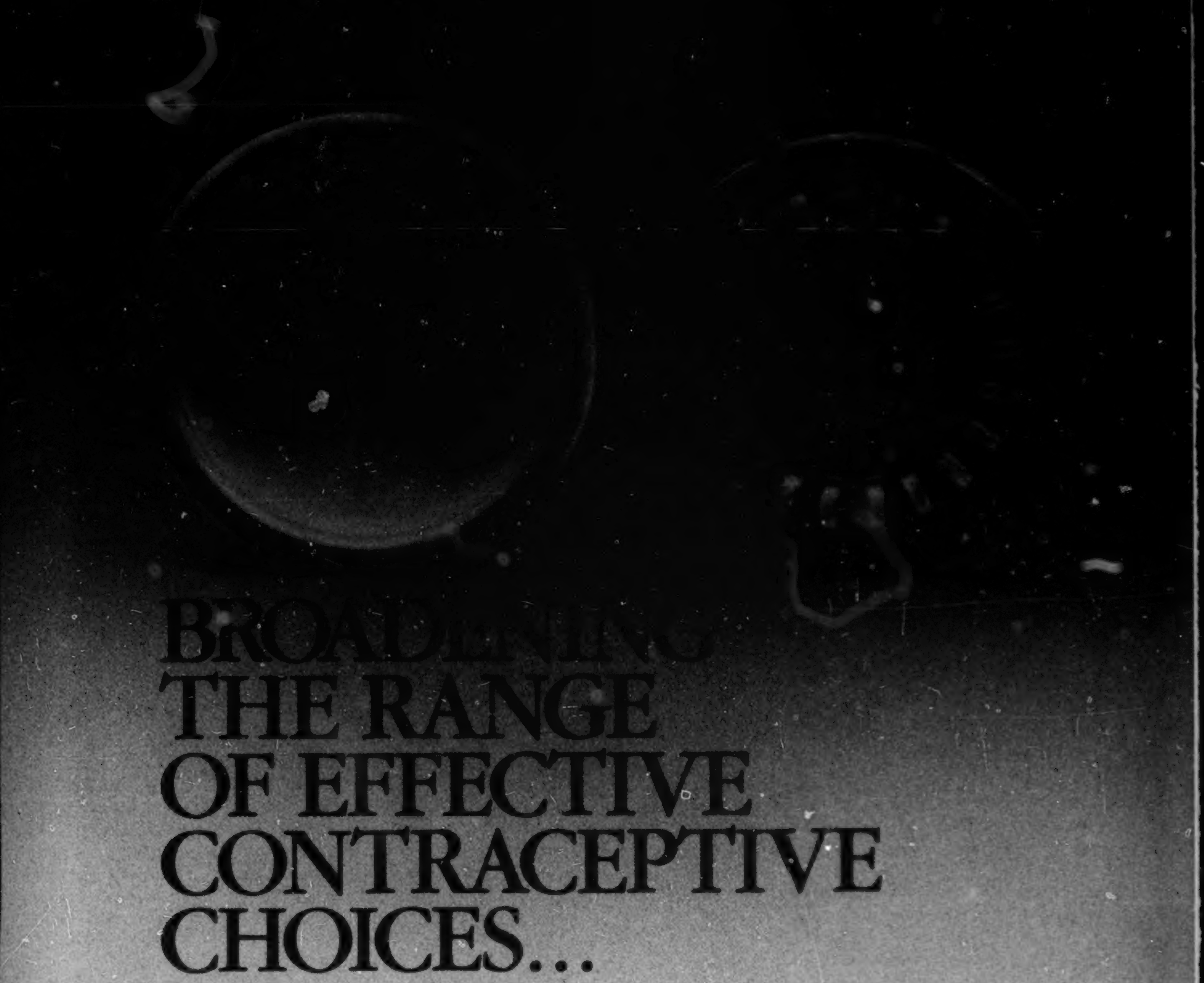
[*] Austria (1981), Belgium (1976 and 1982), Canada (1984), Denmark (1975), Finland (1977), France (1978), Great Britain (1976 and 1983), Greece (1983), Italy (1979), the Netherlands (1982), Norway (1977), Portugal (1980), Spain (1977 and 1985), Sweden (1981), Switzerland (1980) and the United States (1982).

[†] Belgium, Denmark, France, Italy, Portugal and Sweden.



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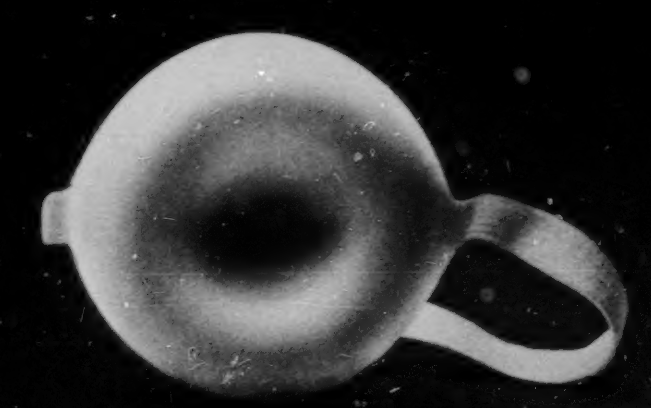

...THE TODAY SPONGE

TODAY SPONGE proven effective in extensive worldwide clinical trials

- TODAY SPONGE demonstrated a method-effectiveness rate of 89% to 91% in worldwide multicenter trials[1]
- Clinical trials involved nearly 2,000 women who cumulatively completed over 12,000 cycles of use[1]
- Effectiveness of TODAY SPONGE is attributable to its three-way protective action: the proven spermicidal activity of nonoxynol-9, absorption of sperm, and as a cervical barrier

Convenient method gains user acceptance with over 80,000,000 SPONGES sold

- Over 80,000,000 TODAY SPONGES have been sold—confirming user acceptance
- TODAY SPONGE may be inserted up to 24 hours prior to intercourse—permitting a greater degree of sexual spontaneity
- Unlike the diaphragm, TODAY SPONGE is non-messy, and provides continuous protection through multiple acts of intercourse, without the need to apply additional spermicide
- TODAY SPONGE is easy to insert, comfortable to wear, and usually cannot be detected by either partner

Impressive safety profile for the most thoroughly tested OTC contraceptive

- TODAY SPONGE is the most thoroughly tested new OTC contraceptive, evaluated both *in vitro* and *in vivo*[2]
- Six years of clinical testing and five years of use show no evidence of a significant health risk associated with the use of TODAY SPONGE[2,3]
- As with the diaphragm, reported cases of toxic shock syndrome (TSS) have been extremely rare

Unique benefits may enhance patient motivation to use contraception

- TODAY SPONGE provides a contraceptive alternative that offers safety, efficacy, convenience, and spontaneity
- Unique combination of benefits may enhance patient motivation to use contraception
- Convenient toll-free, 24-hour TalkLine available to answer any questions patients may have

Today. sponge

References: 1. McClure DA, Edelman DA: Worldwide method effectiveness of the Today® vaginal contraceptive sponge. *Adv Contracept* 1:305-311, 1985. 2. *Today® Vaginal Contraceptive Sponge: A Technical Review.* Irvine, Calif, VLI Corporation, 1986. 3. North BB, Vorhauer BW: Use of the Today® contraceptive sponge in the United States. *Int J Fertil* 30:81-84, 1985.

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Table 3. Distribution of countries, by pattern of contraceptive use among women aged 15–44

Percentage using effective methods (and principal method)				
>30%			10–30%	<10%
Sterilization	Pill	IUD		
Canada	Australia	Finland	Ireland	Greece
Switzerland	Austria	Norway	Italy	
United States	Belgium		Portugal	
	Denmark		Spain	
	France			
	Germany, West			
	Great Britain			
	Netherlands			
	New Zealand			
	Sweden			

(Continued from page 55)

to countries for which all of the requisite information is available.

As may be seen in Table 4, among all women of reproductive age, greater use of effective methods is associated with a slightly lower average total fertility rate—1.6 children per woman in countries with high use vs. 1.8 in countries with low use. The level of use of effective methods is much more strongly linked with the average total abortion rate—0.3 abortions per woman in countries with high use vs. 0.6 in countries with low-to-medium use. The average total pregnancy rate is thus negatively associated with the level of use of effective methods as well (1.9 pregnancies per woman in countries with high effective use vs. 2.3 pregnancies in countries with low-to-medium effective use). For both younger and older women, pregnancy rates are lower in countries where use of effective methods is high than in those where it is low (not shown).

With respect to unplanned and unwanted fertility, the proportions of births that are unplanned are distinctly lower where more women use effective methods, whereas there is no appreciable difference in the proportions that are unwanted ever (not shown). Twenty-six percent of births are unplanned in countries where there is low-to-medium use of effective methods, compared with 18 percent in countries with high use. The corresponding figures for births that are not wanted ever are seven percent and eight percent. It must be kept in mind that, other things being equal, the lower the overall level of fertility, the greater the degree of fertility control required to further reduce the proportion of unplanned births.

The total unplanned fertility rate is also considerably lower in countries where there is a high level of effective-method use than it is in countries with low-to-medium use of effective methods (an average of 0.3 compared with 0.5 unplanned births per woman). Adding abortions to unplanned births increases the contrast by level of use (0.6 compared with 1.1 unplanned pregnancies per woman). Again, the rate of unwanted childbearing seems to be equally low in both categories of countries (about 0.1 births per woman).

Institutional Factors

Three major institutional means by which society influences reproductive behavior are through laws and policies related to family planning, the provision of contraceptive services and the dissemination of information about contraceptive methods and services. Fewer systematic data are available on these topics than on fertility, pregnancy and contraceptive use. To fill the information gap concerning service provision as well as to round out the data on information delivery, the AGI carried out a country-level survey as part of the project. The questionnaire covered three general areas: characteristics of contraceptive services as a whole, the provision of individual methods and specific activities directed toward target groups in the population. Since in the United States publicly subsidized services are directed primarily toward a particular group of women—namely, those of low income—a special effort was made throughout to identify government policies and activities in relation to population groups that might need special assistance with family planning and to assess their effects.

The questionnaire was sent out in April 1986 to several persons in each of the 20 countries who were thought to be knowledgeable about family planning and, possibly, to have somewhat different points of view. These were administrators of family planning associations, government officials with major responsibilities in this area, and heads of medical associations representing obstetrician-gynecologists and family physicians. Nearly 60 percent of the questionnaires were returned, including at least two from every country. Family planning associations and government officials were well represented. In general, the quality of the responses appeared to be quite good. Most of the questionnaires were completed carefully, and answers from different persons in the same country tended to be consistent. Moreover, the responses tallied reasonably well with the descriptive information available from other sources.

- *Laws and policies.* Overall government policy on family planning services was usually taken from the latest official response to the regular United Nations inquiry on this topic. Half of the 20 countries provide direct support for family planning services, and all except Ireland provide at least indirect support.

Abortion is available with very few restrictions in four countries—the Netherlands, Sweden, Switzerland and the United States. In six countries, there are substantial limitations—abortion is permissible only in cases that involve incest or rape or where the pregnancy endangers the life or health of the pregnant woman.* In Ireland and Belgium, abortion is illegal. (The legal situation does not necessarily reflect actual availability; in Belgium, for instance, abortions can be obtained relatively easily in spite of the legal proscription.) In the remaining eight countries, there are some relatively minor limitations, typically involving procedural safeguards.

The AGI country survey asked whether the government had identified any population subgroups as needing special assistance with contraceptive services. Young people are clearly the main focus of attention: They were cited in 14 of the 20 countries studied (one being the United States).† Such a result is understandable given that adolescents in every country constitute a continuing stream of potential first-time contraceptive users. Besides the United States, only Australia, Canada and West Germany singled out low-income women. Virtually all of the countries in the study other than the United States have some kind of national health plan that includes family planning and provides for everyone regardless of income. Immigrants were specified by 12 countries;* rural residents were mentioned in just a few cases.

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*Australia, West Germany, Greece, New Zealand, Portugal and Spain.

†Australia, Austria, Canada, Denmark, Finland, France, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, the United Kingdom and the United States.

The earlier intercountry survey that the AGI had conducted for its study of adolescents showed considerable variation as to the teaching of contraceptive methods in school.[4] Teaching about contraceptive methods, although not prohibited anywhere, was reported to be discouraged in Italy and New Zealand. In five countries it is encouraged;† in three countries it is a part of the regular curriculum;‡ and in nine other countries, the decision is left up to the individual school or to local authorities, as is done in the United States.

There are laws dealing specifically with sterilization in only 12 countries. The United States is one of 11 countries where sterilization for contraceptive purposes has been expressly legalized.§ It is illegal only in Greece. The remaining countries tend to have largely Catholic populations, so that public consideration of this issue has been hindered and perceptions of the legal status of sterilization may differ.

- *Service delivery.* The first item in the country-survey questionnaire asked, "Where is the average person most likely to go to obtain contraceptive services?" If there were more than one type of source attended by at least one-third of contraceptive users, both the main source and the alternative source were to be listed. Family physicians were mentioned as the main source in half of the countries.** Specialists fulfill this function in several other countries, including the United States. Clinics are least commonly mentioned as the main service source (by only Finland, Portugal and Sweden), but are the alternative source reported most often.†† Hospitals and pharmacies were not identified as a main source in any country, although they are, without doubt, an essential part of the total delivery system everywhere.

When asked whether the main source was the same facility to which a person would go for routine health care, the respondents almost always said yes if the source was a family physician and no if it was a specialist or clinic. Among the 16 countries providing a codable response on the involvement of government in delivering services through the main source, in all of those in which specialists are the main source, the government is not involved at all; in all of those in which clinics are the main source, the service is operated directly by the government; and in five‡‡ of the seven countries in which family physicians are the main providers, the government funds the service. Specialist physicians are almost always men; clinic personnel tend to be women. It may be presumed that most of the population would typically find family physicians more conveniently located than either specialists or clinics.

To assess the climate of opinion among providers concerning individual methods, questions were asked about the method most likely to be recommended for postponement and for termination of childbearing. The pill is the overwhelming choice for postponement, regardless of the type of provider. For termination, responses were distributed among the three most efficient methods; both the pill and sterilization were mentioned in the United States. The IUD, the method most often recommended for termination of childbearing in eight of the 20 countries,§§ is essentially unavailable in the United States; clearly, American women who seek to end their childbearing careers have fewer options than similar women in other countries.

Many of the countries whose governments have identified subgroups of the population as having particular family planning needs reported that steps had been taken, either privately or under government auspices, to address those needs. Nine of the 14 countries where young people were recognized as having special needs reported that some effort was being made to address them.*† Special clinics constitute the most common approach, which fits in with the observation made in the AGI adolescent study that young people often prefer services tailored to their needs.[5] The United States and Australia are the only two countries where reduced cost was specified along with special clinics. Two of the four countries where low-income people were recognized as having special needs (the United States and West Germany) said they had taken extra steps to assist such individuals. Reduced cost was mentioned in both cases; in the United States, it is one part of a multifaceted effort. All of the countries that singled out immigrants provide special counseling for this group; in the United States, special clinics are also provided.

The cost of contraceptives was assessed by whether or not the client had to pay for each method. In the case of sterilization, the evaluation of cost was based on responses to a question specifying payment for female sterilizations taking place in a hospital. (In 16 of the 20 countries, replies to a comparable question on male sterilization [taking place anywhere] were identical to the responses on female sterilization.) The United States is one of three countries (along with Belgium and France) where the client pays for female sterilization but is typically reimbursed by some form of insurance. In three others (Austria, Ireland and Switzerland), the cost is borne entirely by the client. Female sterilization is not available in Italy or Greece. In the remaining 12 countries, female sterilization is provided free or only nominal payment is required.

Table 4. Average total fertility rate (TFR), total abortion rate (TAR) and total pregnancy rate (TPR) among women aged 15–44, by level of use of effective methods of contraception*

Rate	Level of use		
	High	Medium	Low
TFR	1.6	1.7	1.8
TAR†	0.3	0.6‡	
TPR†	1.9	2.3‡	

*Countries in the high-use category are Canada, Great Britain and the Netherlands; those in the medium-use category are Belgium, Denmark, Finland, France, Norway, Sweden and the United States; and those in the low-use category are Italy, Greece, Portugal and Spain. Austria and Switzerland are excluded from these tabulations because data on contraceptive use are limited to younger women.

†Portugal and Spain are excluded from the calculations of the TAR and TPR because of lack of data on abortion. Greece is also excluded because its abortion rate is so high that it would distort the average for the low-to-medium-use category. If Greece were included, the average TAR would be 0.8 and the average TPR would be 2.5 for this category.

‡The low- and medium-use categories are combined because the data are available for so few countries.

In the case of the pill, separate questions were asked concerning the cost of obtaining a prescription at the main service source and the cost of supplies. Only in the United States and four other countries (Austria, Greece, Ireland and Spain) must the woman usually pay out of pocket for both the pill prescription and the supplies. In Great Britain, Italy, the Netherlands, Portugal and Sweden, both the prescription *and* the supplies are free. Elsewhere, there is usually no payment required for the medical service needed to obtain a prescription, but pill supplies must be purchased by the client (with possible exceptions for low-income clients).

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*Australia, Austria, Canada, Denmark, Finland, France, West Germany, the Netherlands, New Zealand, Portugal, Sweden and the United States.

†Austria, France, West Germany, Norway and Spain.

‡Denmark, Finland and Sweden.

§Australia, Austria, Denmark, Finland, West Germany, New Zealand, Norway, Spain, Sweden, the United Kingdom and the United States.

**Australia, Austria, Canada, Denmark, France, Ireland, the Netherlands, New Zealand, Norway and the United Kingdom. Throughout this article, the terms "family physician," "general practitioner" and "family doctor" are used interchangeably and are distinguished from "specialists," which refer mainly to obstetrician-gynecologists but may include others, such as urologists.

††Australia, Canada, Denmark, Ireland, Italy, New Zealand, Norway, Spain and the United Kingdom.

‡‡Australia, Canada, the Netherlands, New Zealand and Norway.

§§Austria, Denmark, Finland, France, Greece, Italy, Norway and Spain.

*†Australia, Canada, the Netherlands, New Zealand, Norway, Portugal, Sweden, the United Kingdom and the United States.

The inquiry on access focused on variation in method availability between urban and rural areas or between regions of the country. Most countries reported variation in access to male and female sterilization procedures. In the United States, urban-rural variation was reported. Variation in availability was attributed more often to negative opinion on the part of either providers or the general public than to inconveniently located facilities, although the latter was cited in the United States. Relatively little variation in pill accessibility was reported.

A question on possible eligibility requirements for female sterilization specified age, number of children and husband's consent. The responses fell into three categories distinguishing places where there are no such rules, where there is a lower age limit between 25 and 30 or the consent of the husband must be obtained, and where the lower age limit is over 30 or the woman must have a certain number of children. There are no overall requirements in the United States or in six of the other countries.* When it comes to prescription of the pill, on the other hand, the United States is among the large majority of countries where a pelvic exam is required for most patients, although in some countries, exceptions may be made for teenagers. In five countries, the pelvic exam is not regularly required.†

- *Information delivery.* As a gauge of the emphasis put on provision of information about contraception and contraceptive services overall, respondents to the country questionnaire were asked to rate the level of both governmental and nongovernmental information efforts. The United States is one of five countries (along with West Germany, Ireland, Italy and Spain) indicating that such efforts were relatively weak. Denmark, Finland, the Netherlands and the United Kingdom were the only countries reporting strong efforts.

Eleven of the 15 countries that recognized at least one subgroup of the population as being in need of special family planning help reported that some effort was made to provide information and education geared to their needs.‡ Special efforts aimed at immigrants almost always included communication in other languages. The United States is one of three countries, along with Canada and the Netherlands, where special information and education programs are designed to reach more than one such target group.

In the earlier AGI study on adolescent pregnancy, estimates of the proportion of female students actually receiving instruction on contraceptive methods were collected. Substantial variation was reported, ranging from fewer than 33 percent of female students in five countries to more than 90 percent in four countries. Survey data showed that over half of U.S. adolescents learned about specific methods in school.§[6]

Finally, although advertising of contraceptive methods and services may be legal in most countries, it does not always occur. Advertisement of physicians' services and the pill is quite uncommon. Advertisement of clinic services is more or less limited to countries where clinics are a main source of service. Hence, only the advertising of condoms is considered here. Newspapers and magazines are the typical media for condom advertising; the special issue of advertising condoms on TV does not arise where TV is publicly operated and carries no advertising at all, as is the case in many of these countries. Condoms were reported to be advertised widely in most countries except Belgium, Canada, Finland, Greece, Ireland and the United States.

Institutional Factors and Method Use

- *Laws and policies.* For the countries with survey data on contraceptive use, whether government support for family planning is direct or only indirect does not seem to influence the level of use of effective methods.**

In countries where there are relatively few restrictions on abortion, use tends to be highest. Thus, in all of the countries where abortion is available without substantial restriction, except Italy, more than 30 percent of women 15–44 use effective methods; but fewer than 30 percent are users of such methods in Greece, Portugal and Spain, where access is very restricted.

In all of the countries where low-income people, immigrants or rural residents receive special consideration, there is high use of effective methods among older women.

- *Service delivery.* The system for delivering family planning services also appears related to levels and patterns of contraceptive use. Where family physicians are the main providers, the pill tends to be the most widely used method. The pill is an easy method for general practitioners to deal with. In contrast, they must usually refer for sterilization operations; and they are unlikely to have sufficient practice to feel confident about inserting the IUD unless that method is very widely used. Moreover, since use of the pill requires ongoing supervision, a relatively small input of time and effort may be of continuing financial benefit to the doctor.

Where clinics play a major role, IUD use is frequently very common, as in Finland, Norway and Sweden. Family planning clinics are perhaps an ideal setting for dispensing the IUD, since a specified staff member can specialize in this method and develop a high level of expertise. Nevertheless, where the IUD is popular enough, family physicians may also have enough patients using it to become quite expert.

In three of the five countries where fewer than 30 percent of women rely on the most effective methods (Greece, Italy and Spain), the main source is specialists, and in four of them (Ireland, Italy, Portugal and Spain), clinics also play a prominent role. The impression gained is that in these countries, family planning remains set apart from mainstream health care. It either is the province of gynecologists, who may be difficult to reach, or is available through a clinic system that is possibly less than adequately developed. Ireland is the one country where use of effective methods is very low and family physicians are the principal source, but only a small fraction of doctors there are willing to provide contraceptive services at all.

There is no country with survey data where family physicians are the main providers and use of effective methods is low. Where specialists or clinics are the main providers, however, only one country (Belgium) is characterized by high use.

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*Australia, Belgium, Canada, West Germany, the Netherlands and New Zealand.

†Ireland, New Zealand, Spain, Sweden and the United Kingdom.

‡Austria, Canada, Denmark, Finland, France, the Netherlands, Norway, Spain, Sweden, the United Kingdom and the United States.

§A more recent estimate suggests that this proportion has reached about 75 percent. (See: D. A. Dawson, "The Effects of Sex Education on Adolescent Behavior," *Family Planning Perspectives*, **18**:162. 1986.)

**It should be kept in mind in interpreting the findings about the relationship of contraceptive use to policy, family planning services and information delivery that the information on these topics was current as of the AGI country survey in 1986, whereas the surveys providing data on contraceptive use took place up to 11 years earlier. The greater the time gap, the more likely that the comparison is inappropriate because of changes in policies and programs that could have occurred.

Moreover, specialists play an important role in all countries where use is low; but clinics provide substantial services in countries where there are high or medium levels of effective-method use. Provision of services by family physicians is even more strongly linked with high use among young women than it is with high use among all women of reproductive age.

Extensive use of sterilization, especially among older women, is largely confined to those countries where family physicians and specialists are the main providers. The pattern for the pill is very similar to that observed for the three effective methods together: Where family physicians are the principal service source, use tends to be high; where specialists are the principal source, it is usually low; and where clinics are the principal source, it typically falls in between. Use of the IUD appears to be positively linked with the availability of clinic services, but, somewhat unexpectedly, IUD use appears to be less common where specialists are the main providers than where family physicians play that role. Although many couples also rely on the condom in countries where clinics are the main source of services, this method seems to be used infrequently where family physicians are the major providers.

There may be more use of effective methods among women in their 20s where there are special services for young people, even though such efforts tend to be directed mainly toward adolescents. Use is high among women aged 20–29 in four of the seven countries with some kind of youth program (Canada, Great Britain, the Netherlands and Norway), but in only one of the four that do not make any such effort (Belgium).

Among countries where access to sterilization is uneven, low prevalence may be associated more often with negative attitudes on the part of providers or local officials than with inconvenient location of sources. There is a strong negative association between the prevalence of sterilization and the existence of eligibility requirements.

With respect to the pill, use appears to be somewhat more likely to be low where the client herself must pay to obtain the prescription (two cases out of three—Greece and Spain) than where she does not (two cases out of eight—Italy and Portugal). Use of the pill is very clearly negatively associated with the client's liability for payment for supplies. Both of these relationships are stronger among older than among younger women, possibly because there are more alternative contraceptive options for women who wish to terminate childbearing than there are for those who are still postponing. Uneven access to the pill may also deter use; this makes sense since return trips must usually be made at regular intervals to renew the prescription as well as to obtain supplies. In contrast, the requirement of having a pelvic examination before obtaining a prescription does not have the expected negative effect on pill use, perhaps because adolescents are not looked at separately.

- *Information delivery.* Provision of information about contraception can be a significant factor contributing to use. There is a modest positive relationship between use of effective methods of contraception and the overall information effort. Similarly, use is apt to be higher when an effort is made to direct information specifically toward groups that are in need of special assistance. The association between use of effective methods and the strength of the overall information effort may be somewhat stronger for young women than for women of all ages. Use of effective methods among young people is often higher also in countries where more than one-third of female students receive sex education that includes instruction in contraceptive methods. Use of the condom is low in only two of the nine countries where this method is commonly advertised (Denmark and Finland). In contrast, reliance on the condom is low in four of the five countries where it is not widely advertised (Belgium, Canada, France and the United States).

The Case Studies

Four of the 20 Western countries included in the overview analysis were selected for detailed examination: Canada, Great Britain, the Netherlands and the United States. The three foreign countries, which were visited by teams of researchers, were chosen not only because of the anticipated relevance of their circumstances to the United States and the availability of data, but also because they were among the countries examined in detail in the AGI's earlier comparative study of adolescent pregnancy in industrialized countries.[7] Thus, a base of knowledge, contacts in the countries and materials already existed. Profiles of each of the case-study areas appear later in this issue.

Since the provision of family planning services in Canada is a provincial rather than a national responsibility, the decision was made to focus on the two most populous provinces—Ontario and Quebec—and to treat them as separate units of analysis. These two provinces also present a marked contrast with respect to social, economic and cultural conditions. The survey data that provide much of the background material for the case study of the United Kingdom are limited to Great Britain, so the latter is, in effect, the primary level of reference. Most of the information on service provision is further restricted to England and Wales. The Dutch survey covered only women aged 18–37.

Information on service delivery was collected largely during site visits to each of the four foreign case-study areas during late 1986 and early 1987. Teams of two staff members spent one week each in Ontario and Quebec and 10 days each in the Netherlands and England. Some months in advance of each visit, a strategically situated local person was asked to schedule appointments. The teams conducted interviews with representatives of all major elements of the service delivery system, with persons in the media and information services and with government officials responsible for service evaluation and policy formulation. With regard to physicians, it was possible to meet only with leaders of the appropriate professional organizations, to interview one or two practicing doctors and to collect information on doctors' performance from other providers.

Overall Fertility, Abortion and Pregnancy

In all five study areas, the total fertility rate has been below the level required for population replacement since at least the mid-1970s. At that time, the level of fertility was very much the same, with rates close to 1.8 births per woman, except in the Netherlands, where the rate was slightly lower (1.7). By 1982, as Table 5 (page 62) shows, total fertility was about 1.5 births per woman in the Netherlands and Quebec, still about 1.8 in Great Britain and the United States and just below 1.7 in Ontario.

Comparison of the age-specific fertility rates for 1982 indicates that the variation in the levels of total fertility is determined mainly by differences below age 30 (see second panel of Table 5). Childbearing drops off rapidly after that, and the rates are essentially indistinguishable among the five study areas. Early childbearing is an outstanding feature of the U.S. situation, with very much higher rates than elsewhere at ages 15–24 and a somewhat lower rate at ages 25–29. Consequently, women below age 25 contribute almost one-half of the U.S. total fertility rate, compared with approximately one-third in Ontario, Quebec and Great Britain and only one-quarter in the Netherlands.

The data show considerably more intercountry variation in abortion rates than in

Table 5. Total fertility rate (TFR), total abortion rate (TAR), total pregnancy rate (TPR) and age-specific rates, for the five case-study areas, 1982

Total rate and age-specific rate*	Ontario	Quebec	Great Britain	Netherlands	United States
TFR	1.65	1.53	1.76	1.50	1.83
TAR	0.42	0.29	0.35	0.18	0.79
TPR	2.07	1.82	2.11	1.68	2.62
Fertility rate					
15–19	23.7	15.3	27.7	8.2	53.6
20–24	87.9	84.5	101.8	69.4	112.0
25–29	122.6	122.5	126.0	132.5	111.1
30–34	71.5	63.1	68.7	67.1	63.9
35–39	21.7	17.8	22.6	18.0	21.2
40–44	3.1	2.7	4.2	3.5	3.8
Abortion rate					
15–19	22.6	11.8	16.9	5.5	44.4
20–24	24.8	15.9	18.0	8.9	51.2
25–29	16.2	13.3	12.8	7.7	31.5
30–34	10.7	8.9	9.7	6.5	17.7
35–39	6.2	5.1	7.5	4.9	9.3
40–44	2.2	2.1	3.2	2.3	3.0
Pregnancy rate					
15–19	46.3	27.1	44.6	13.7	98.0
20–24	112.6	100.4	119.8	78.3	163.2
25–29	138.8	135.8	138.8	140.2	142.6
30–34	82.2	72.0	78.4	73.6	81.6
35–39	27.9	22.9	30.1	22.9	30.5
40–44	5.3	4.8	7.4	5.8	6.8

*TFR, TAR and TPR are per woman; age-specific rate is per 1,000 women. The total rates include the very small contribution of women aged 45–49.

fertility rates (see middle panel of Table 5). The total abortion rate in the United States has been almost twice as high as that in Canada and Britain and about four times as high as that in the Netherlands. Although differences in the age-specific abortion rates persist at least up to age 40, there is again an enormous gap between the United States and the other study areas at ages 15–24. Women below age 25 account for 61 percent of the total abortion rate in the United States, 57 percent in Ontario, 51 percent in Great Britain, 48 percent in Quebec and 40 percent in the Netherlands.

Summing the total fertility and total abortion rates to obtain estimates of the corresponding pregnancy rates further highlights the exceptional situation in the United States (see bottom panel of Table 5 and Figure 1). The pregnancy rates vary more than the fertility rates because of the wide differences in the levels of abortion. The incidence of pregnancy is also much higher in the United States than in any of the other four study areas, and virtually all of the "excess" pregnancies in the United States occur before age 25. Abortion accounts for an especially large proportion of the U.S. total pregnancy rate (30 percent), compared with the proportion in the other study areas: 20 percent in Ontario, 17 percent in Great Britain, 15 percent in Quebec and only 10 percent in the Netherlands.

Table 6. Percentage of births among women aged 15–44, 20–29 and 35–44 that were unplanned or unwanted ever at the time of conception, for the five case-study areas*

Country or area	Year of survey	15–44		20–29		35–44†	
		Unplanned	Unwanted‡	Unplanned	Unwanted‡	Unplanned	Unwanted‡
Ontario	1984	29.2	9.1	32.5	7.8	27.3	11.5
Quebec	1984	22.0	4.7	23.1	4.8	26.4	6.7
Great Britain	1976	21.0	u	19.0	u	30.7	u
Netherlands	1982	7.8	u	8.4	u	12.8	u
United States	1982	36.9	9.9	37.5	7.7	28.1	18.4

*Based on births in the five years before the fertility survey. †For the Netherlands, the ages were 35–37.
‡Unwanted births are a subcategory of unplanned births.

Unplanned and Unwanted Births

For each of the study areas, special tabulations of births by planning status were obtained from the national fertility surveys; the data are restricted to experience within the five years leading up to the survey.* These tabulations also include women of all marital statuses. In the case of Britain, the most recent survey containing any data on planning status is the 1976 Family Formation Survey.

The percentages of all births occurring in the five years preceding each survey that were unplanned (i.e., that came sooner than they were wanted or were not wanted ever) and that were unwanted ever are shown in Table 6 for women aged 15–44, 20–29 and 35–44. The proportion of unplanned births varies more among younger women than among older women. Among the latter, differences in the percentages unwanted ever are slightly greater than differences in the percentages unplanned. The United States almost always has the highest proportions unplanned *and* unwanted. Ontario comes second; both proportions are consistently lower for Quebec than for Ontario. The percentage of births that are unplanned is lower still in Britain and is lowest of all, by a considerable margin, in the Netherlands. The high overall incidence of unplanned childbearing in the United States is influenced by the elevated fertility rates at young ages as well as by the high proportion of unplanned births at those ages. In all of the study areas, the proportions of births unplanned or unwanted are consistently higher among women who have lower incomes and less education than among those who are better off and more educated (not shown in tables).

Figure 2 shows the contribution to the total pregnancy rate made by planned and unplanned births and by abortion. The components have been computed by applying the distributions of births by planning status shown in Table 6 to the levels of fertility and abortion that prevailed in the year following each survey. It can be seen that the differences observed in the level of planned pregnancies are quite small. Most of the variation in the total fertility and pregnancy rates is due to differences in unplanned births and abortions. The U.S.

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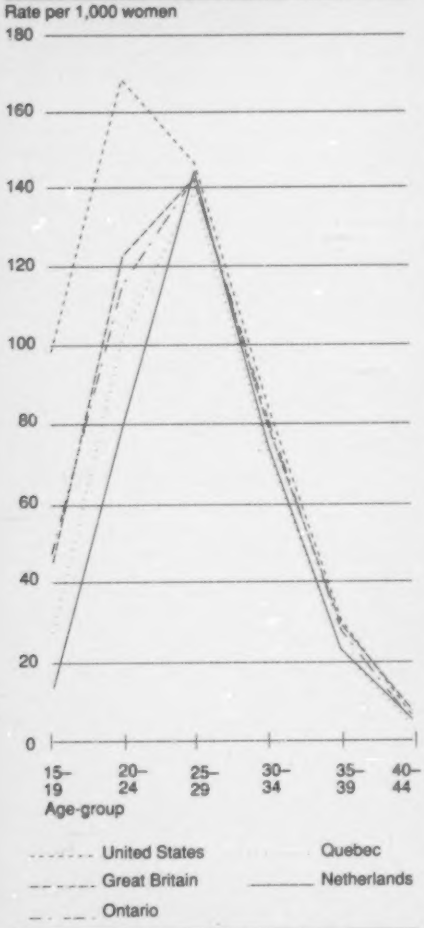
*This reduces, but by no means eliminates, the inappropriateness of the time sequence for the observation of contraceptive use and that of unintended fertility from the same survey.

Figure 1. Age-specific pregnancy rates for the five case-study areas, 1982



total unplanned fertility rate is about one-third higher than that of Ontario, about twice as high as those of Quebec and Great Britain, and as much as six times as high as that of the Netherlands. The U.S. total unplanned pregnancy rate (1.5) is more than half again as high as that of Ontario (0.9), the second highest, and nearly five times as high as that of the Netherlands (0.3), where it is lowest; these differentials are largely attributable to the elevated U.S. abortion rate. There is little variation in the level of wanted fertility among the three areas for which data are available (not shown).

Contraceptive Use

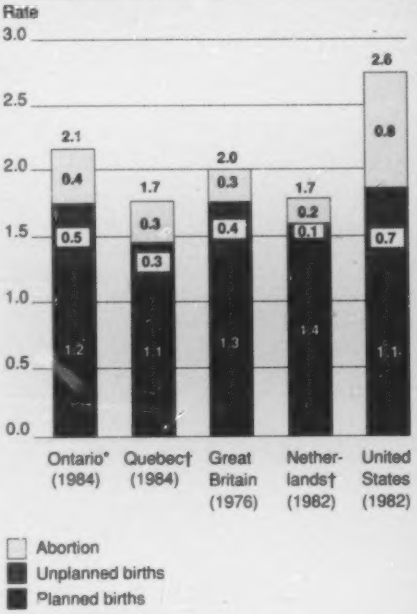
Finally, we turn to contraceptive use, which is assumed to be the main determinant of the pregnancy rates discussed above. Comparisons are made for all women aged 15–44 and for three subgroups representing different stages in the reproductive cycle. These are never-married women aged 20–29, who may or may not be sexually active, are generally highly fecund and, for the most part, intend to postpone childbearing; women currently in union aged 20–29, who are sexually active, are generally highly fecund and intend postponement, spacing or even termination of childbearing; and women currently in union aged 35–44, who are sexually active, are usually less fecund and intend almost exclusively to terminate childbearing. Teenagers, who are in many ways distinct even from unmarried women in the 20–29 age-group, could not be considered here because of the variation in the lower age limit of the survey samples.

A much higher proportion of all women of childbearing age use no method of contraception in the United States than in any of the other study areas—46 percent compared with 35 percent in the Netherlands and close to 30 percent in Ontario, Quebec and Great Britain (see top panel of Table 7, page 62). A higher proportion of women in the United States than in the other countries report that they have been sterilized for reasons other than contraception; however, this does not appear to account for the difference in the proportion using no method, as suggested in the comparisons for the age and marital status subgroups that follow. There is also greater reliance in the United States on nonmedical, less-effective methods than in any of the other study areas except Great Britain, where the condom, the most effective of such methods, is popular.

With respect to the three highly effective methods, the elevated level of sterilization in the two Canadian provinces is fairly well balanced by extensive use of the pill in the Netherlands and Great Britain, so that the differences between these areas in the combined use of effective methods are not very great. In the United States, however, use of the pill is about the same as in Quebec (16 percent compared with 15 percent), and the prevalence of sterilization is no higher than in the Netherlands or Great Britain (18 percent, 19 percent and 20 percent, respectively); the combined use of effective methods is, thus, appreciably lower among U.S. women. The IUD is not particularly popular in any of these countries, but it is used less in the United States than anywhere else.*

Among women aged 20–29 who have never been married and are not living with a male partner, the overall level of contraceptive practice is relatively low, but nevertheless differs substantially from country to country (see second panel of Table 7). Use of any method ranges from 64 percent in Britain down to 43 percent in the United States. Although the proportion sexually active is a potentially important determinant of the level of use among this group of women, the finding in the earlier AGI study of similar patterns of sexual activity for teenagers in these same countries strongly suggests that variation in the level of sexual activity is not an important factor.[8] The United States stands out for its low use of the pill—25 percent of women in the subgroup, compared with 49 percent in Great Britain, 48 percent in Ontario, 44 percent in the Netherlands and 39 percent in Quebec. Since few women in this subgroup rely on sterilization or the IUD in any of the countries, the result is that there is substantially less reliance in the United States than elsewhere on effective methods as a whole.

Figure 2. Total pregnancy rate, planned and unplanned birthrate and abortion rate, for the five case-study areas



*Fertility and abortion data for 1982.

†Abortion data for 1982.

Among 20–29-year-olds living in a sexual union, overall use of any method is fairly low in the United States (69 percent), and combined use of the three most effective methods is markedly lower there than in any of the other study areas (45 percent—see third panel of Table 7). Overall use approaches 80 percent in Britain, and as many as 66 percent of Dutch women rely on one of the three most effective methods. The pill

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*The IUD was still generally available in the United States at the time of the 1982 U.S. survey.

Table 7. Percentage distribution of all women aged 15–44, never-married women and women in union aged 20–29 and women in union aged 35–44, by type of contraceptive method currently used, for the five case-study areas, 1980s

Age-group and method	Ontario (1984)	Quebec (1984)	Great Britain (1983)	Netherlands (1982)	United States (1982)
All women 15–44*					
Any method	68.9	71.3	70.0	65.3	54.5
Total effective	54.9	60.0	52.0	56.3	37.4
Sterilization	36.5	39.0	19.6	19.1	17.8
Pill	12.2	15.3	27.1	30.2	15.6
IUD	6.3	5.7	5.3	7.0	4.0
Less-effective	14.0	11.3	18.0	9.0	17.1
Condom	8.9	7.3	11.8	7.0	6.7
Other	5.2	4.0	6.2	2.0	10.4
None	31.0	28.6	29.9	34.7	45.5
Never-married 20–29					
Any method	57.5	49.2	63.7	56.7	43.4
Total effective	52.0	42.6	50.9	48.2	28.7
Sterilization	1.5	0.0	0.0	0.2	1.6
Pill	48.4	39.4	49.4	44.2	25.0
IUD	2.0	3.3	1.5	3.8	2.1
Less-effective	5.5	6.6	12.8	8.5	14.7
Condom	3.1	4.4	2.5	4.4	3.8
Other	2.4	2.2	10.3	4.2	10.9
None	42.6	50.8	36.3	43.2	56.6
In union 20–29†					
Any method	69.0	71.6	78.5	76.3	68.9
Total effective	52.2	54.8	60.4	66.4	44.5
Sterilization	13.9	11.4	6.4	5.6	11.9
Pill	31.9	35.1	46.3	51.6	27.5
IUD	6.4	8.4	7.6	9.2	5.2
Less-effective	16.8	16.8	18.1	9.9	24.4
Condom	9.4	11.1	12.9	7.2	9.0
Other	7.5	5.7	5.3	2.7	15.3
None	30.9	28.4	21.4	23.7	31.1
In union 35–44‡					
Any method	77.4	82.6	80.2	78.4	67.0
Total effective	67.0	73.6	54.4	67.5	47.8
Sterilization	59.0	64.8	40.2	41.9	41.8
Pill	3.2	4.5	7.5	18.4	1.9
IUD	4.9	4.2	6.7	7.3	4.2
Less-effective	10.4	9.0	25.8	10.9	19.2
Condom	6.3	4.2	14.9	7.1	9.0
Other	4.0	4.8	10.9	3.8	10.3
None	22.6	17.4	19.8	21.6	32.9
Total	100.0	100.0	100.0	100.0	100.0

*Data for Canada and Great Britain are adjusted to include ages 15–17; data for the Netherlands are adjusted to include ages 15–17 and 38–44.

†For Great Britain, women aged 18–29.

‡For the Netherlands, women aged 35–37; for Great Britain, women of all marital statuses.

is the predominant method chosen by these women, as it is among their counterparts not living in union; the proportions of women aged 20–29 living in union who rely on the pill (from 28 percent in the United States to 52 percent in the Netherlands) are actually not much greater, and are sometimes even lower, than those for never-married women. Moderate proportions of those in union use the IUD. As many as 14 percent of couples in which the female partner is in her 20s have already opted for sterilization in Ontario, as have 12 percent in the United States and 11 percent in Quebec. Early sterilization is not so common in the Netherlands and Britain. There is significant condom use in all of the study areas, especially in Britain, but use of other less-effective methods is substantial only in the United States.

Finally, among older women living in union, the overall proportion using a method is close to 80 percent everywhere except in the United States, where it is 67 percent (see bottom panel of Table 7). The large proportion of U.S. women reporting noncontraceptive sterilization is concentrated among nonusers in this group. Because of greater reliance on the condom and other less-effective methods, combined use of the effective methods is relatively low in both Great Britain and the United States. Very few older women continue to use the pill in the United States (two percent), and this method is prominent at older ages only in the Netherlands (18 percent). The IUD tends everywhere to be somewhat less popular among older women than among younger women living with a partner. On the other hand, about 40 percent of all couples aged 35–44 rely on sterilization in the Netherlands, Great Britain and the United States; this proportion reaches approximately 60 percent in the two Canadian provinces.

Differences in contraceptive use according to income and education vary in many respects from country to country (not shown in tables). In Ontario and Quebec, married women with relatively little education are far more likely to turn to sterilization early in life than are better-educated women. Pill use is positively related to both income and education in Great Britain. Young married Dutch women who are more affluent and better educated are more likely than those with lower income and less education to use one of the more effective methods—especially the pill—but there is no clear pattern among older Dutch women. Among younger women in the United States, sterilization is less prevalent among those with more income and education than among those who are less affluent and less well educated. Less-effective methods tend to be used more often by women of higher income and education.

Conclusions

The conclusions in this section refer not only to the earlier sections of this article but also to the individual profiles published elsewhere in this issue. Among the 20 Western countries in the study, the United States has a total fertility rate that falls somewhat above the middle for the group. Its total abortion and pregnancy rates, however, are higher than those of most of the other countries. Moreover, since unplanned births as well as abortions are common, the unplanned pregnancy rate is also relatively high.

Detailed comparison of the United States with Ontario, Quebec, the Netherlands and Great Britain shows that the birthrate in the United States is significantly higher only among women below age 25. Although the U.S. abortion rate is higher at most ages, the contrast between the United States and the other study areas is much greater among young women. Consequently, it is at ages under 25 that the U.S. pregnancy rate stands out most. Since in the United States unplanned conceptions tend to be concentrated in the early stages of reproductive life, it is clear that the frequency of pregnancies conceived early in the reproductive years and the frequency of unplanned pregnancies represent different aspects of essentially the same phenomenon.

The proportion of all women of reproductive age who use one of the three modern, highly effective methods of contraception is lower in the United States than in many other Western countries. The level of pill use in the United States is moderate; both young, unmarried women and older women in this country are much less likely to use the pill than are similar women in the other study areas. In addition, even before the major IUDs were taken off the U.S. market, few U.S. women chose the IUD. Although sterilization is relatively common in the United States, especially among younger women, its prevalence does not raise the combined level of use of the three most effective methods above the middle of the range for all 20 countries. In the United States, less reliance on the most effective methods is associated with a high proportion of women using no method at all. Somewhat fewer U.S. women may be exposed to the risk of conception, but this is almost certainly not the main explanation of low overall use. In some other countries where use of the most effective methods is likewise quite low, such as Greece and Italy, many women report use of less-effective methods, mainly the condom and withdrawal, and the proportion not using any method is smaller than in the United States.

The principal effect of use of the highly effective methods of contraception is to reduce the incidence of unplanned pregnancy and especially of abortion. Evidently, the determination to limit childbearing is deeply entrenched in modern, developed societies, and women often resort to abortion if an unintended pregnancy occurs. Use of the most effective methods of contraception also results in fewer unplanned births, particularly those that are wanted eventually but occur sooner than planned. Because effective methods provide a high measure of security concerning postponement and spacing of pregnancies, they enable young people, especially young women, to prepare for parenthood and to integrate family-building into other aspects of their lives. This is of particular relevance to early childbearing in the United States, where unplanned early childbearing is so common.

Since the use of each of the three most effective methods requires medical intervention, the overall extent of reliance on them is very much dependent on access to the necessary services. Access has a number of dimensions, including cost, proximity and familiarity. Most of the countries covered in this study are quite similar with respect to cost, in that a wide range of medical contraceptive services is offered to everyone free of any charge or at a very low price. Typically, such care is also integrated into the primary health services of the country, making it available at many of the sources with which people are familiar, since they go there for a variety of purposes. The United States differs from the usual pattern in that contraceptive care is not offered to everyone at little or no expense and, like most health care, is delivered primarily through medical specialists.

This study shows that use of the most effective contraceptive methods is likely to be high where general or family practitioners are the usual source of primary health care, including contraceptive services. In such countries, family practitioners meet all three of the accessibility criteria enumerated above very well. On the other hand, use of effective methods is likely to be relatively low where the usual source of contraceptive services is specialist physicians, mainly obstetricians and gynecologists, as in the United States. Specialists often charge considerable amounts for their services, they are less apt to be conveniently located and women may be less familiar with them.

Because of the pervasiveness of specialist services in the United States and the accompanying absence of a unified system of primary health care provision, there is less dependence on general practitioners, and their function is not the same as in many other countries. While this situation may be, in many respects, beyond the scope of policy manipulation, general and family practitioners could be encouraged to provide contraceptive services and to increase awareness of such services among their patients. Moreover, access to physician-provided contraceptive services could be improved by further reducing financial barriers. Some forms of organization in the United States that bring together multiple medical services, such as group practices and health maintenance organizations, hold promise for easing access within the existing system.

Reliance on family doctors for basic contraceptive care appears to be associated with widespread use of and confidence in the pill. Family doctors often do not have the necessary training and skill to insert IUDs or even to fit diaphragms. They rarely perform sterilization operations. The pill is simple to prescribe, and most women have no contraindications to its use. The risk of long-term side effects is low, especially for the low-dose formulations that are used almost exclusively everywhere except in the United States. Short-term side effects, such as breakthrough bleeding, pose minimal problems when the patient can easily contact the doctor. Favorable experience with the method seems to foster positive attitudes on the part of both doctors and their patients. Thus, while utilization of family physicians as service providers does not necessarily make available the greatest choice of methods, the emphasis such providers place on prescribing the pill does tend to promote effective fertility control.

Nevertheless, the pill is not viewed either by the medical profession or by the public at large as a method to be used indefinitely. The need for a highly effective alternative to the pill apparently provides much of the impetus for sterilization in the case-study countries (Canada, the Netherlands, the United Kingdom and the United States), where it is in fact very common. Couples everywhere are concerned about the permanence of sterilization, but the choice of methods is very limited, and couples and providers alike evidently give higher priority to effectiveness than to reversibility. At least in Canada, the Netherlands and the United Kingdom, high levels of sterilization, even at relatively young ages, seem to be due mainly to favorable assessment of the advantages and disadvantages of this method compared with other methods, rather than to inability to use reversible methods successfully.* Sterilization is likely to be less prevalent where the IUD is widely accepted (e.g., Finland, Norway and Sweden). Cultural or religious opposition to sterilization may be an overriding consideration, leading possibly to continued use of the pill throughout a woman's reproductive life or to use of

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*The proportion of women who regret having been sterilized nevertheless increases with duration of time since the operation took place and is negatively related to the age at which the operation occurred. (See: S. K. Henshaw and S. Singh, "Sterilization Regret Among U.S. Couples," **18**:250, 1986; and S. K. Henshaw, "The Delivery of Family Planning Services in Ontario and Quebec," on page 80 of this issue.)

less-effective methods backed up by abortion (Belgium is an example of the former; both occur in France and Italy).

Family doctors are the principal source of contraceptive services in all of the countries where sterilization is common except the United States, and they apparently cooperate in making this option available to their patients even though they seldom provide it themselves. In Britain, the waiting time for elective surgery under the National Health Service can be very long, and many people thus turn to private services for which they must pay.

The existence of a choice of service sources is another critical factor contributing to extensive use of the most effective methods. Both general practitioners and specialists typically spend very little time with their patients and provide a minimum of counseling. General practitioners often do not provide a full range of methods. Many couples who want or need a method other than the pill and those who require more extensive counseling must look for other sources of service. If there is no other source available, they may use a nonmedical method or go without a method. Clinics are often successful as a secondary source of contraceptive services because they offer great expertise and a wide range of methods, and are more likely to offer such special features as evening and weekend hours and female clinical personnel.

Many countries have made some kind of special provision for first-time contraceptive users, most of whom are young people. That effort appears to have been less successful in the United States than elsewhere, as has been extensively documented in the earlier AGI study of adolescents.[9] Young people everywhere tend to seek an anonymous source of service where confidentiality can be maintained, frequently a place other than the one used by most adult women in their communities. Counseling is often very important at this stage—counseling about the responsibility involved in sexual activity, as well as about the comparative risks and benefits of the various contraceptive methods and about proper method use. Even if most new users end up taking the pill, time is required to explain the regimen carefully and to make sure the instructions have been understood. Especially in Canada, it appears that at some point early in their reproductive lives, most women attend a family planning clinic where they are exposed to extensive group and individual counseling that helps prepare them for responsible decision-making concerning sex and contraception. Medical professionals in Canada, the Netherlands and England believe that the kind of detailed discussion of the possible adverse long-term health effects of the pill now required in the United States promotes a level of anxiety concerning the method that is unwarranted in view of the actual health risks involved. In addition, for new, young pill patients, the pelvic exam is often postponed in these other countries to an early follow-up visit.

The most essential feature of the choice of sources is that all potential clients have open access to all options. In England, everyone can decide for herself or himself whether to go to a general practitioner or a family planning clinic. In the Netherlands and in Canada, all those who are uncomfortable with the services of their family doctor, want a wide choice of methods or need additional information can go to a family planning clinic. In each of these countries, a family doctor who wants to refer a patient for special help or counseling concerning contraception would in most cases recommend a clinic rather than a specialist. The assumption, stressed more in Canada and the Netherlands than in England, is that such clients will eventually return to the mainstream source of service when their special need has been taken care of.

In contrast, the family planning clinic system in the United States exists primarily to serve the low-income population. Many women who would prefer to go to a private doctor do not have the money to do so. At the same time, some who might benefit from a clinic arrangement, especially young people, frequently find these facilities unattractive because they are seen as services for the poor and are thought to provide a lower standard of medical care. U.S. clinics are more apt to refer clients to private doctors for special help than the reverse. Young, more affluent people who elect to go to clinics because of the greater confidentiality they provide often switch to private doctors when this consideration is no longer of much importance to them. However, poor clinic clients do not have this option. In the United States, selection of the type of source is determined chiefly by characteristics of the person, primarily financial resources, rather than by the nature and extent of the service needed.

Outside of the United States, there is not generally perceived to be a need for special services for low-income women. Poverty is recognized as an important social problem in Britain, but there, as in the other countries studied, officials and much of the general population are convinced that because public medical services are open to everyone at little or no cost, people with low incomes are not disadvantaged when it comes to health care. At least in Britain, however, observation suggests that the existence of a national health service may have become an excuse for overlooking some people who still cannot take advantage of what is offered to them because they remain ensnared in a web of physical and psychological problems stemming from their poverty. Groups with particular problems, such as immigrants or those with language difficulties, do receive special attention in many countries, including the United States. The universal well-baby-care programs in Britain and the Netherlands offer a special opportunity to reach women who are likely to respond positively to family planning assistance but might not otherwise be aware of it.

Socioeconomic differentials in the proportion of births that are unplanned and unwanted, as well as in the proportion of women practicing contraception, exist in all of the case-study countries. They appear to be less marked in the Netherlands than elsewhere. The relative frequency of unplanned and unwanted births is consistently higher among lower status than among higher status women. With respect to the most effective methods of contraception, sterilization is often more prevalent, and may occur earlier, among less-advantaged couples. On the other hand, use of the less-effective methods is often positively related to both income and education, at least among married women.

In general, effectiveness is stressed much more as a criterion for contraceptive method choice, both by providers and by users, in the other case-study areas than it is in the United States. In addition, the range of effective contraceptive alternatives is narrower in the United States, which is unfortunate because each method tends to be particularly appropriate for some persons and in some situations. The provision of services through specialists and clinics would be expected to facilitate access to a wide variety of methods in the United States; but the number of methods available is restricted by pressures, including the cost of liability insurance and litigation, that have slowed the development and marketing of new methods in this country.[10] The disappearance from the American market of nonmedicated IUDs since the time the U.S. data on contraceptive use were collected has narrowed the choice of effective methods open to couples in this country. Moreover, in all of the other case-study areas, certain methods that are not marketed in the United States play a small but possibly important role in increasing contraceptive prevalence: The morning-after pill is widely available in the Netherlands and Great Britain and is available to a lesser extent in Canada; the injectable Depo-Provera is utilized under certain circumstances in the Netherlands and Great Britain; and the cervical cap is marketed in Canada and Great Britain. In contrast, methods like the contraceptive sponge that have not been found to be highly effective are not approved for distribution in the three other countries or their use is discouraged.

Much routine contraceptive care, including prescription of the pill and supervision of its use, does not require a high level of training, and reservation of these tasks for physicians—particularly specialists, as in the United States—may be both inappropriate and unnecessarily expensive. Male professionals predominate in virtually all the countries included in the study; however, there may be a demand for female personnel from teenagers and from immigrants who come from countries where women traditionally lead very sheltered lives.

Use of the most effective methods is greater where there is the broadest dissemination of information about contraceptive methods and how they can be obtained. Potential new users are especially in need of such information. Sex education courses in school provide an obvious vehicle although other avenues can be found—the media, for instance, as in the Netherlands. The British initiative, enlisting pharmacists as distributors of literature on specific health topics such as contraception, is a promising example of a way in which existing resources in the private sector can be utilized.

Information about contraception is both distributed and assimilated much more easily where open, tolerant attitudes about sex prevail. In the United States, media executives' refusal to allow advertising of condoms and other nonprescription contraceptive products on network television and in most print media cuts off a principal routine means of disseminating product information. Contraception appears to be treated in the United States as something special and a little "taboo," reflecting an apparent underlying ambivalence about any topic closely related to sexuality. Elsewhere, especially in Quebec and the Netherlands, sex and contraception tend to be accepted more as a part of the content of everyday communication.

In sum, the way in which family planning services are provided seems to have a substantial impact on the pattern of contraceptive practice. The service delivery system in the United States is different from those of other Western countries in a number of fundamental respects that make it less conducive, on the whole, to the promotion of the modern, highly effective methods of contraception. In addition, there appears to be a lack of readily available information about contraceptive methods and services in the United States, especially simple, objective messages in the mass media. The high incidence of abortion and unplanned births in the United States can be attributed at least in part to these circumstances.

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3. E. F. Jones et al., 1986, op. cit. (see reference 1).

4. Ibid.

5. Ibid.

6. Ibid.

7. Ibid.

8. Ibid.

9. Ibid.

10. R. Lincoln and L. Kaeser, "Whatever Happened to the Contraceptive Revolution?" *Family Planning Perspectives*, **20:**20, 1988.

The Delivery of Family Planning and Health Services In Great Britain

By Jane Silverman and Elise F. Jones

Background

Women in Great Britain are more likely to use contraceptives, particularly, more effective methods, than are U.S. women. As was shown in the overview article (page 53), 70 percent of all 15–44-year-old British women are estimated to use some method of contraception, compared with 54 percent of U.S. women. The differential among unmarried 20–29-year-olds is similar (64 percent and 43 percent, respectively). In this article, we will examine some of the characteristics of British society and its health care system that may be responsible for Britain's greater contraceptive prevalence.

Comprehensive health care has been largely free to all residents of Great Britain since the establishment of the National Health Service (NHS) in 1948, when nearly all hospitals and clinics were nationalized. There are 14 Regional Health Authorities in England and one in Wales, and within each of these are smaller District Health Authorities (DHAs). The regional authorities allocate money among the DHAs, review their plans, manage construction and provide some services. The approximately 190 DHAs in England and Wales are the basic policy and management units for planning and administering services. Decisions are made at this level with regard to the extent of services to be provided in a particular district.

The NHS guarantees easy access to basic medical care through an extensive network of general practitioners (GPs), who control access to specialist physicians and hospitals. In the two-tier British health care system, the GP is the first point of contact and provides all primary medical care. Rather than make appointments directly with a specialist, an NHS patient must first consult with and obtain a referral from his or her GP. All individuals 16 and older register with a GP, who is responsible for the medical care of everyone on his or her "list."

"The most fundamental factor contributing to the wide utilization of family planning services in Great Britain and the use of highly effective methods is that contraceptive services are [provided] free to people of all ages."

The GP receives a capitation fee (a flat payment for each patient seen), plus additional payments for other duties, such as treating patients over age 65, practicing in a group or in a rural area, making night visits, providing maternity services or treating temporary nonresidents. Unlike GPs, specialist physicians, who are generally located in hospitals, are salaried employees of the NHS.*

The NHS also uses health visitors for a variety of paramedical tasks. For example, recent mothers and their newborn infants are visited at home by a midwife (for a minimum of 10 days after delivery) and are then placed in the care of a health visitor, who visits the home periodically to ensure that their health care needs are being met.

Britons have the right to purchase private health insurance and to receive their medical care through the private sector. However, only four percent of those 16 or older had a private medical insurance policy in 1983,[1] and only five percent of all inpatient hospital stays and two percent of outpatient visits were paid for privately.[2] Nonetheless, the private sector is sometimes utilized by NHS patients who, for a variety of reasons, are unable to obtain specialized services, such as abortion or sterilization, or who are frustrated by excessive waiting periods for hospital beds.

Family Planning Services

Although Britain has a long history of organized family planning services, the NHS was in existence for almost 25 years before family planning services were included.[3] It was not until 1973 that the NHS agreed to provide free family planning services nationwide. The Family Planning Association (FPA), which until then had been the largest private organization offering a medical service nationally, began in the following year to turn over its network of more than 1,000 clinics to the NHS. British GPs did not agree to provide family planning services within the NHS until 1975.

Currently, the two main providers of family planning services are GPs and family planning clinics staffed by doctors with special training in providing contraceptive methods. (In some instances, clinic doctors may be gynecologists, but that is not the typical staffing pattern.) Patients who have serious gynecologic problems or need surgery are referred to specialist physicians (e.g., gynecologists, urologists or general surgeons) for treatment. Contraceptive advice and supplies may also be obtained at pharmacies and, depending on the area and availability, through home-visiting programs or from Brook Advisory Centres, special clinics whose clients are mainly young people. Maternity patients may receive contraceptive services while in the hospital or during postnatal visits by health visitors. Condoms are available at clinics,

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The authors would like to thank those in Great Britain who consented to be interviewed during the course of this study.

*Doctors in general practice and in hospitals are entitled to spend part of their time in private practice. While most GPs rely almost exclusively on the NHS for their incomes, many hospital doctors have opted for part-time involvement in private practice.

pharmacies, some supermarkets, through mail-order houses, in barber shops and in vending machines (which are usually located in pubs).

In some ways, NHS family planning services are provided differently from most other NHS care. As noted earlier, patients must consult their own GP before they can be treated at a hospital or specialized clinic. However, in 1974, the Department of Health and Social Services (DHSS) acknowledged the "special nature" of family planning care by allowing patients to attend either a GP or a family planning clinic for such care. In addition, recognizing that some patients might be uneasy talking to their own GP about contraception, the NHS agreed to permit patients to retain their regular GP for routine medical care but visit a different one to obtain family planning services (if that GP agrees to accept patients on this basis).[4]

The funding arrangement for family planning also differs from that of most other medical care. GPs receive item-of-service payments (over and above the capitation fee) from the NHS central fund for every family planning consultation, a special arrangement developed in 1975 that was a crucial factor in enticing GPs to provide family planning services within the NHS. Family planning clinics, on the other hand, are funded through the DHAs, which receive a limited annual budget from the NHS that is to subsidize all of their services. This funding arrangement can work to the clinics' disadvantage: Although the clinics rely entirely on the DHAs for funding, they constitute a very small part of a DHA's overall responsibility and must compete with all of the DHA's other services. Moreover, hospital-based specialist physicians also depend on allocations from DHAs. Because the service obligations spelled out in the specialists' contracts had not included family planning, the NHS was forced to offer item-of-service payments like those given to the GPs. However, unlike the special payments made to the GPs, the specialists' payments come from each DHA's budget rather than from the NHS central fund.

Officially, GPs and clinics offer confidential advice; a choice of birth control methods, including postcoital contraception;* free contraceptive supplies;† male and female sterilization advice; information and services; pregnancy testing; advice on sexual problems; and advice and information regarding unplanned pregnancies. All reversible methods of contraception are available in Great Britain, including injectables (which remain unavailable in the United States).[5]

Family planning services are oriented mainly toward women, however; NHS contraceptive services for men are almost nonexistent, even though 40 percent of couples who practice contraception depend on the condom or on vasectomy.[6] In 1974, GPs elected not to offer the condom as a family planning method. In addition, clinics make little or no effort to publicize the fact that they provide condoms free of charge, for reasons ranging from ambivalence among clinic staff about encouraging condom use to concern about draining already limited and threatened clinic budgets.[7] As a result, most people buy condoms at pharmacies and other nonmedical outlets.

GPs and Service Provision

In 1983, 62 percent of the approximately 3.8 million people who utilized medical family planning services in England visited GPs. In general, GPs who offer family planning services are more accessible than clinics and have increased in number in recent years. Ninety-seven percent of all GPs (22,130 doctors) provided family planning services in 1982; they served 2.2 million patients, or 22 percent of all women aged 15–44.[8] Those who provide family planning are generally characterized as being easy to find, with convenient daily office hours.[9] Patients are usually able to obtain an appointment within one day of their request.

Because GPs are paid a set amount from the central NHS budget for each contraceptive patient on their list plus additional amounts that depend on the method provided, family planning funding for GPs is "demand-led": The more they do, the more they are paid. On average, GPs earn $1,540 per annum for contraceptive services, the second largest contribution to their income from item-of-service payments, after those for maternity services.[10] Physicians receive a standard payment of about $14 per patient for helping a woman choose a method (which may include providing contraceptive advice, prescribing a method and offering follow-up care), even if she actually obtains her method elsewhere. Larger payments are made to GPs who provide methods other than the pill, such as the diaphragm, the cervical cap or the IUD. For example, reimbursement for an IUD fitting is an additional $50.

Women who visit a GP for family planning services tend to be older and are more likely to be married and to have children than are those who go to clinics; they also are typically more interested in spacing their pregnancies than in delaying or ceasing childbearing.[11] GPs are the most natural source of contraceptive advice for such women, since GPs generally provide postnatal services and subsequent health care for the women's children. In a 1985 national survey, 55 percent of women said they preferred to consult a GP for family planning advice, compared with 33 percent who preferred a clinic and 12 percent who had no preference.[12] Women preferred GPs mainly because they provide care in a more familiar setting, are more likely to have daily office hours and provide greater continuity of care; moreover, the purpose of the woman's visit is less apparent to friends and neighbors.

Although nearly everyone has contact with a GP at some point for routine medical care or for referral to a specialist, and thus presumably talks to the physician about a variety of health issues, this does not mean that the GP will necessarily initiate discussion of contraception; some GPs wait for the woman to bring the subject up. GPs with special certificates in contraceptive technology‡ are more likely to introduce the subject than are those without special training.[13] In addition, GPs initiate no formal outreach to advertise family planning services or recruit new patients. While almost everyone knows that GPs provide free family planning services, it is less well known that women can go to a GP other than their own for family planning advice and care, an especially important option for young people. The names of doctors providing family planning services are available at post offices and libraries and from Family Practitioner Committees, where the lists of all physicians practicing in an area are kept. These lists contain special codes that indicate if a GP provides family planning services and whether he or she will accept another physician's patient solely for contraceptive care.

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*Postcoital methods consist either of two doses (two tablets each) of an oral contraceptive containing 50 mcg of ethinyl estradiol, taken 72 hours apart, or an IUD that is inserted within 3–5 days of unprotected intercourse.

†A GP gives a patient a prescription for a method, but the woman must purchase her supplies at a pharmacy; a clinic generally provides supplies for a method on site.

‡The Certificate of Contraceptive Technology is awarded to doctors and other professionals who have attended a course in family planning and who have been judged by the instructing physician to have reached an adequate standard of efficiency. Such courses may be organized by voluntary bodies (such as the FPA), by professional bodies (such as the Royal College of Midwives) or by clinics (such as the Margaret Pyke Centre or the Marie Stopes Memorial Centre); the courses are approved by the Joint Committee on Contraception, which includes representatives from the Royal College of Obstetricians and Gynecologists, the Royal College of General Practitioners, the National Association of Family Planning Doctors and the FPA.

Despite the additional payments that GPs receive for providing methods such as the IUD or the diaphragm, they still typically offer a very limited range of methods. Indeed, the pill is often the only method a GP provides. (However, 71 percent of GPs certified in contraceptive care offer alternative methods, compared with 25 percent of those not certified.[14]) Most women who go to a GP are likely to receive a prescription for the pill, regardless of their age.* In 1983, about 90 percent of the family planning patients of GPs obtained a prescription for the pill, five percent were fitted with an IUD, and the remaining five percent received other contraceptives, including the diaphragm, the cap and spermicides.[15]

Why have GPs not provided more comprehensive family planning services, despite the apparent financial incentive? First, although the majority of GPs are registered to provide contraceptive services, only 43 percent of GPs under age 45 and 32 percent of those over 45 have received professional training in contraception.[16] And even if GPs have had such training, they may not get enough practice in some areas (such as in fitting IUDs) to keep their skills at an acceptable level. In addition, many GPs appear to find it much easier, less time-consuming and more financially rewarding to prescribe only the pill, and refer to clinics those patients who request other methods.

The primary complaint about many GPs (especially from clinic physicians and other medical professionals) is that they have no uniform standards of care. While the recommended components of an examination for women desiring or taking the pill include testing blood pressure, checking body weight and doing breast, vaginal and cervical cytological examinations, none are mandatory, and monitoring of blood pressure is the only one that is strongly encouraged.

The impression that we gained after several interviews was that the quality of GP services varies widely. Some of our contacts expressed special concern about GPs who prescribe the pill based on incomplete medical information. Others suggested that GPs may be less likely than clinic physicians to provide a balanced discussion of the risks and benefits of the pill. However, we believe that British GPs generally assess the actual dangers of the pill as few and therefore view it as the most desirable method for most women.

Clinics and Service Provision

There were 1,739 family planning clinics in England in 1982, approximately one clinic for every 5,700 women of reproductive age.[17] About two in five patients using a prescription contraceptive in Great Britain obtained it from a family planning clinic.[18] Clinic patients are more likely than patients of GPs to be young, single, childless women interested in delaying childbirth or older women who have completed their families and who often need an alternative to the pill.[19] Since clinics are generally located in urban areas, they tend also to attract professional and middle-class women who are looking for specialized services.

Clinic sessions, during which clients may receive counseling and obtain methods, are held in every district, although the clinic site may range from a discrete facility (such as a free-standing or hospital-based clinic) to a temporary, neighborhood location (such as a school or church basement). Clinic hours, the number and scheduling of family planning sessions and the distribution of specialized clinic services vary widely.[20] Some clinics have daily and evening sessions; others have only one session each week or even each month. Clinic visits are generally by appointment, but walk-in patients are not necessarily turned away, and a few clinics operate entirely on a walk-in basis. To increase accessibility for patients who need immediate help, some health authorities have instituted centralized appointment systems so that any clinic user who urgently needs an appointment can call in and be referred to the clinic in her area that has the earliest family planning session.

DHAs distribute their funds at their own discretion, and family planning services often seem to fare badly in these decisions. Authorities may feel that contraceptive patients could still obtain services even if the number of clinic sessions were cut, since clinic users could simply be transferred to GPs, who are paid from unrestricted central NHS funds. However, research has shown clinic services to be more cost-effective than those provided by GPs.[21] It has been estimated that in 1982, the cost to the NHS for fully comprehensive clinic services (including the provision of information and education, prescriptions and such services as cytologic screening) was $15 per patient, while the cost through the GP for prescribing the pill was $20 and for fitting an IUD was $40.[22] In addition, shifting patients to GPs simply transfers costs from the local budget to that of the central government. Moreover, from the patients' perspective, the two providers are not equivalent. Thus, many clinic patients might not transfer to a GP, and for those who would, it is quite likely (given the current status of GP services) that the range of methods available to them would be greatly restricted.

Most family planning clinics offer all available contraceptive methods—oral contraceptives, injectables (Depo-Provera and Noristerat), the IUD, the diaphragm, the cap, condoms, spermicides, natural family planning and postcoital contraception. A few also perform sterilizations. In 1983, 58 percent of new clinic patients obtained pill prescriptions; 16 percent, the IUD; eight percent, the diaphragm or the cap; 11 percent, the condom; six percent did not obtain a method; and two percent obtained spermicides or were sterilized.[23] Supplies are dispensed free at most clinics.

At a woman's first clinic visit, complete individual and family medical histories are obtained, as well as the name of the patient's GP. A nurse then discusses the various methods of contraception with her and helps her choose an appropriate one. After the patient's blood pressure and weight are recorded, she sees the physician. A breast examination and a pelvic examination may be performed at this time, or may be postponed to a later visit if they cause too much anxiety. The doctor prescribes a method, and the patient returns to the nurse to receive instructions regarding its proper use. The first visit generally takes one hour or less (not including waiting time upon arrival). There is no guarantee that a patient will be seen by the same doctor at each visit, and there is no formal follow-up of patients who do not keep their appointments.

Family planning clinics, which are staffed by physicians who have received special training in contraception, have earned the reputation of being "family planning specialists." There is a greater likelihood that a female doctor will be in attendance at a family planning clinic than at a GP's office.[24] Clerical staff are available for administrative tasks, so that nurses are free to play a more important role in patient care by taking medical histories, counseling patients about contraceptive methods and doing routine medical checks. Other district health personnel, such as health visitors, midwives and district nurses, may also be part-time staff members of a clinic, and some clinics may even have interpreters available.

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*Recently, the upper age limit for pill use was changed from 40 to 45 for nonsmoking women with no medical problems.

A 1985 survey revealed that 33 percent of British women preferred a clinic for contraceptive services, generally because of the wider range of methods offered, the clinics' greater expertise and the more thorough care they provide.[25] In addition, some of the women found it less embarrassing to discuss sexual matters with a clinic staff member than with their family doctor, and preferred having the choice of consulting a female physician. However, there is a certain pattern to the movement of patients between GPs and clinics that highlights the contributions of both types of providers: Patients may transfer from a GP to a clinic if they are experiencing side effects from their present method or are interested in switching methods; on the other hand, clinic patients are likely to see a GP if they have an acute problem with their method and need to be seen on short notice.[26]

A typical complaint about clinics is that consumers have problems finding out their location and hours.[27] Such information is supposed to be available at libraries, hospitals and health centers, from midwives or health visitors, in the telephone directory, from the Family Planning Information Service (operated by the Family Planning Association), from FPA regional centers and from the Health Education Authority, although actual availability varies. It appears that the FPA keeps the most current information about hours as well as travel directions to all the clinics in an entire region.

Apart from the FPA, some health authorities have taken the initiative to prepare a brochure detailing the choice of clinics, available hours, telephone numbers, maps and any special services available at a particular clinic. However, individual clinics generally undertake little formal outreach, in part because NHS clinics are not permitted to place ads in newspapers (although private clinics can). Besides the lack of information on hours and location, other disadvantages of clinics include inconvenient hours, long waiting times to see a doctor, less personal knowledge of the patient's medical history and less continuity of care (as the patients generally see a different doctor on each visit).

Whereas GPs appear to favor prescribing the pill to most women, clinic physicians seem to encourage a more wide-ranging sequence of contraceptive use: condoms during initial sexual experiences, the pill while postponing childbearing, other reversible methods while spacing births and the IUD or sterilization when the woman has completed childbearing.

Research indicates that while pill use is widespread in Britain, women have decidedly mixed feelings about the method and may prefer having a greater variety of methods available. One study showed that women recognize the potential dangers of the pill but generally weigh its risks against the consequences of pregnancy before deciding whether or not to use it.[28] Many women believe the pill to be the best method for teenagers or young single women, but consider other methods to be a rational alternative for women spacing their children. Most clinic physicians with whom we spoke said that their patients fear the pill but use it because it is easy and effective. One provider summarized the decision about which contraceptive method to use as a "choice among negatives."

Other Types of Providers

In 1974, when family planning services were first included in the NHS, the DHSS acknowledged that two groups required special attention with respect to family planning services—adolescents and women who "cannot bring themselves to seek help or who have difficulty in getting to a surgery [i.e., a doctor's office] or clinic."[29] To increase the effective use of contraceptives by adolescents, the DHSS recommended that either special clinic sessions or more informal clinics be established so that teenagers can have their special needs met in a congenial setting. As a result, some clinics offer Youth Advisory Services, which are special clinic sessions oriented toward teenagers.

The Brook Advisory Centres, which are funded primarily by NHS grants (through health authorities) and private donations and serve nearly 60,000 clients annually, are designed to be especially sensitive to the needs of young people. In 1985, 77 percent of Brook Advisory Centre clients were 25 or younger.[30] These centers charge no fee and are typically staffed by doctors, nurses and counselors who are particularly interested in working with young people. To create a less "medical" atmosphere, staff members in some facilities do not wear uniforms, and the centers' interiors appear more cheerful and casual than those of the typical family planning clinic. Counseling is considered an important component of service delivery for the role it can play in building the self-esteem of teenagers and increasing their effective use of contraceptives.

The Brook facilities usually are accessible by public transportation, and most are open during the evening and on Saturday mornings so teenagers can attend easily. Time is allotted during each session to accommodate clients who show up without an appointment. Pregnancy testing is available, along with counseling and referral for abortion, if requested. Young men are welcome to come with their partners, to visit on their own for counseling or to obtain free condoms. However, few men come to Brook facilities for services. Most patients find out about the centers by word of mouth. Leaflets are also distributed through the Family Planning Information Service and through youth clubs, and to a limited extent in the schools. Furthermore, clinic counselors are sometimes invited to schools to address the school nurses and teachers.

The pill is the most popular contraceptive method among clients of Brook Advisory Centres. In 1985, 80 percent of clients used the pill; eight percent, condoms; six percent, the cap; four percent, the IUD; and two percent, other methods.[31] The pill is initially prescribed for two months and then extended to a maximum of six months. Pelvic examinations are not done on the first visit, but are postponed to a later date. Follow-up procedures vary from one center to the next, but there is generally some attempt to contact patients who miss appointments. There are 11 Brook Advisory Centres in the London area but only six others in the rest of Britain. Like other family planning clinics, Brook Advisory Centres have had their funding reduced by the local health authorities.

The second group for whom the DHSS encouraged special arrangements—those who are unwilling or unable to obtain services from established sources—may have mental or physical handicaps, face language and other cultural barriers or encounter a wide range of social and environmental conditions that militate against their use of formal contraceptive services. Domiciliary services, in which a patient is visited at home by a family planning worker, were developed to meet the special needs of such people. While there is no formal definition of who the targeted women should be, they have typically been from the lower income groups and more recently have included large numbers of immigrant women from the Indian subcontinent and the West Indies.

However, since domiciliary services are under the control of the DHAs, they are subject to the same budgetary problems faced by family planning clinics and are very vulnerable to extinction, since they serve a relatively small number of people. While about 140 domiciliary programs were in existence when the NHS took over responsibility for family planning services, this number had dwindled to about 50 by 1980.[32]

Pharmacies are the primary source of both prescription and nonprescription contraceptives in Great Britain; there are more than 12,000 across the country. No fee is charged for either medical or nonmedical methods if they are obtained with a prescription from a GP or clinic doctor. However, condoms are generally purchased at pharmacies (or from other sources), because most men do not attend clinics. In addition to providing contraceptive supplies, 31 percent of pharmacies offer pregnancy testing.[33] The pharmacist may thus be the first contact for a woman confronted with an unintended pregnancy.

Besides providing supplies, pharmacists also furnish advice and information about available methods, side effects and family planning services. In 1986, the FPA, the Health Education Authority and the Pharmaceutical Society of Great Britain introduced the first national health education campaign in community pharmacies. To aid them in their role as advisers, all pharmacists were given pamphlets and contraceptive handbooks to distribute to their customers and display racks for their shops. The campaign gave out press releases to inform the public about the materials they could obtain at their community pharmacy. A preliminary assessment of the project revealed both a high degree of participation and great public interest, as measured by the number of pamphlets taken and the response to tear-off slips. There was less participation in the inner-city areas, most likely because of language barriers.[34]

Specialized Services

The availability of specialized services such as sterilization and abortion varies greatly in the different regions of the country, but in general these services are not widely available through the NHS. Private clinics and nonprofit facilities thrive on the inability of the NHS to meet the demand for sterilization and abortion: Although annual data on the provision of sterilization are not systematically recorded, it has been estimated that one-third of all married couples are likely to obtain sterilizations through private providers.[35] In addition, about 50 percent of all abortions are done by private providers.[36] The Pregnancy Advisory Service, the British Pregnancy Advisory Service and the Marie Stopes House are all important providers of abortion and sterilization, and are generally perceived as providing high-quality care.

According to the 1983 General Household Survey, sterilization has replaced the pill as the most common method of contraception among married or cohabiting women aged 18–44.[37] Most female sterilizations are performed in hospitals and require a stay overnight or for a few days; outpatient sterilizations, though increasing, are not the norm. Women are usually referred to a hospital specialist by a GP. In some areas, it is common practice for a family planning clinic doctor to counsel a woman about the procedure but then send her back to her own GP for referral to a hospital. Vasectomies are performed in NHS clinics and hospitals, in private clinics and by private surgeons and specially trained GPs. The operation can be done as an outpatient procedure, since it is typically carried out under local anesthesia and takes about 10 minutes.

Counseling about sterilization—including discussion of alternative methods of contraception, the irreversibility of the procedure and common myths about the consequences of the operation—is considered an integral part of the delivery of sterilization services, although there is considerable variation among providers in the quality and quantity of such counseling. The decision to perform a sterilization includes an assessment of the patient's age, parity, marital stability and potential for regretting the procedure. (One clinic that we visited would not perform sterilizations on any women under age 25 or any childless women under age 30.) A study of sterilization counseling found that women have to go through more red tape than men,[38] in fact, most women felt they had received enough or too much counseling, since they had made up their minds about the surgery before ever approaching their GPs. Although a partner's consent is not legally required, it is standard practice for a provider to seek the agreement of the partner.

Female and male sterilization are provided free of charge under the NHS, but these services are not available in all areas: In 1984, 65 percent of the DHAs in England and Wales made no provision for vasectomy in family planning clinics, and 88 percent indicated that there was no provision for female sterilization.[39] In addition, waiting lists are often long: One study found an average waiting time of six months or longer for female sterilization and three months or less for vasectomies.[40] Because of the uneven provision of services and the long waiting lists (up to three years in some areas), many operations are performed in the private sector. The average fee for a private-sector vasectomy is approximately $100–$130, whereas the fee for female sterilization is $205–$235, depending on the technique and length of hospital stay.[41]

Funding arrangements are an important reason for the inability of the NHS to meet the demand for sterilization: Before the NHS routinely covered family planning services, sterilizations were paid for by the NHS only if they were done for "medically necessary" reasons; specialists deemed procedures done for "social" reasons as being outside their contractual agreement. Thus, to ensure the wider availability of sterilization, the NHS instituted item-of-service fees in 1976 for specialists performing sterilizations. In 1986, a specialist received about $65 for each vasectomy and $90 for each female sterilization.[42] However, funding is at the discretion of the DHAs, and some allocate no money at all, while others earmark only a limited amount. When the money runs out, many specialists simply stop performing vasectomies and female sterilizations until the next fiscal year.

All NHS abortions are performed by specialists, usually gynecologists. There are few outpatient facilities for abortions within the NHS, so the majority of women spend one or two days in the hospital: According to 1985 statistics, 60 percent of NHS abortions performed on residents of England and Wales were inpatient procedures.[43]

Since a woman can obtain a legal abortion only if two registered medical practitioners agree that continuation of the pregnancy would threaten her life, involve a risk to her physical or mental health or that of any of her children, or carry a substantial risk that she would give birth to a physically or mentally handicapped child, the attitudes of the referring doctor and the gynecologist are important factors in whether a woman will receive an NHS abortion. Women are often reluctant to seek help and advice from their own GP. Indeed, a study designed to explore how well abortion services satisfy the needs of the consumer found that many women viewed each visit to a GP and gynecologist as a "battle" in their effort to be granted an abortion.[44] Although only three percent of abortions in England and Wales are performed at gestations of 18 or more weeks, considerable attention has been paid to the link between the provision of abortion services by the NHS and delays in obtaining abortions. Inefficient pregnancy testing services, GPs' unsympathetic attitudes or general reluctance to approve abortions, the narrow range of reasons for which consultant gynecologists will perform abortions and inadequate district resources have all been identified as key factors in causing delay into the second trimester of pregnancy and in forcing women to obtain abortions from private-sector providers.[45]

Advertising and Media Coverage

The advertising of contraceptive products by brand name is banned on British television and radio but is permissible in print, although only after all statements and visual depictions have been approved by a committee of the Advertising Standards Authority. The type of advertisements that have usually been approved have been described as "nonpersuasive, ambiguous and usually euphemistic" and "couched exclusively in terms of couples needing family planning."[46] However, this situation has changed somewhat with the AIDS crisis, as concern over public sensitivities has been replaced by a perceived need to communicate explicit and accurate information about the spread of the disease and how to avoid it. During one week in March 1987, for example, the British public was bombarded by explicit prime-time television programs on AIDS that had special emphasis (and instructions) on the use of condoms. What effect these dramatic changes will have on future messages about contraception remains to be seen.

The Independent Broadcasting Authority allows the advertising of family planning *services* on television, although public service announcements and motivational messages regarding contraceptive use often are scheduled at times when the target audience is unlikely to be watching. Agencies such as the Pregnancy Advisory Service are not permitted to advertise on television, and these groups also are severely restricted in the posters they may display: For example, the Pregnancy Advisory Service cannot mention the word "abortion" unless it is accompanied by the words "help" or "advice."

In addition, the print media give far more attention to reports about the dangers of methods than to their health benefits. An analysis of the media coverage of a 1983 "pill scare" found that 34 articles were published in the national press and 161 in the local press following the release of two papers linking pill use to an elevated risk of breast and cervical cancer.[47] This response was in stark contrast to a single mention in the national press of a report released at about the same time suggesting that the pill exerts a protective effect against breast cancer.[48] Moreover, efforts by the press to stem panic came days later, and may only have served to confuse the public with conflicting messages.

Thus, the climate of opinion concerning sex in Great Britain is filled with contradictions, just as in the United States. The extent of premarital sex and early initiation of sex in Britain is on a par with levels in other developed countries. If the amount of nudity in newspapers and magazines and on television were taken as an indicator of the society's norms, then Great Britain could be described as sexually more open than the United States. However, if the climate of opinion concerning sex were truly open, one might expect contraception to be treated as a normal and natural part of present-day sexual behavior. The fact that in Great Britain contraceptives are still grouped with hemorrhoid and scalp treatments as unacceptable products for advertising suggests that this is not the case.[49]

Conclusions

Since 1974, when free family planning services were first provided within the NHS, there has been a significant increase in the use of contraceptive methods and services.[50] In fact, despite the shortcomings of the family planning delivery system discussed here, women in Great Britain are more likely to practice contraception, particularly with the more effective methods, than are women in the United States. However, while many of the people with whom we spoke said that there is no unmet need for family planning services in Great Britain, we believe that this complacency may not be justified. Poor women, immigrant women, men and people in rural areas are some of the groups that still have problems obtaining contraceptive services from the NHS. Access may be hampered by limited availability of services due to budget cuts or by a multitude of social, cultural and linguistic factors that militate against use of available services.

Based on our interviews and on studies that have systematically evaluated the family planning delivery system,[51] a number of barriers to services can be identified. One is the lack of widely disseminated, visible information regarding family planning services. In particular, there is a paucity of information, especially at the local level, about family planning clinic hours and locations, as well as about policy issues such as the ability to consult with a GP other than one's own for contraceptive services. Although each of the 11 regional FPA offices maintains information on the location and schedule of all NHS clinics in its region, barriers still exist for people who are unaware of this service or who are unable to take the necessary initiative to obtain the information.

The major barrier to comprehensive service provision appears to be the very funding arrangement that was instituted to ensure widespread availability of these services from a choice of providers. Indeed, the existence of two separate funding mechanisms for GPs and clinics has led to a relationship between the two that tends to be competitive rather than cooperative. GPs may feel that their patients are being poached and that efforts are being duplicated, whereas clinic doctors may feel that their specialty is being threatened and that patients who see GPs receive inferior service. The DHAs are primarily interested in providing as many services as possible within a limited budget; if family planning services can be transferred to the central budget from which GPs are paid by forcing patients to move from clinics to GPs, then it is in the interest of the DHAs to do so.

As a result of budgetary problems, the number of clinics offering Youth Advisory Services and the number of Brook Advisory Centres for teenagers are very limited, and domiciliary services have decreased. Furthermore, access to specialized services, such as vasectomy, female sterilization and abortion, varies widely across districts, and waiting lists are sometimes unacceptably long. Thus, substantial numbers of people are forced to pay for these services in the private sector.

The most fundamental factor contributing to the wide utilization of family planning services in Great Britain and the use of highly effective methods is that contraceptive services are free to people of all ages. Another critical factor is that family planning services are offered by GPs. Given their wide distribution and key role as coordinators of all medical services in Great Britain, GPs have a significant effect on the contraceptive use patterns of the population, since most women at one time or another will come into contact with one, either for themselves or for their children. Specifically, GPs' services account in large part for the widespread use of the pill, for several reasons. First, most GPs appear favorably disposed to it as a generally safe, effective and simple method for most women. In addition, GPs have a rather compelling financial incentive to provide the pill, since they need no additional training and can prescribe the pill for many family planning patients without taking much time out from the treatment of general medical patients.

Indeed, the contraceptive services offered by GPs have been criticized because of their apparent bias toward the pill. Clinics are more likely to give equal time to alternative methods, depending on the age of the woman and the nature of her sexual relationship and childbearing intentions. As a result, there is evidence to suggest that women have adopted a functional approach to family planning providers, wherein both clinics and GPs are viewed as suitable sources of advice and supply by women at different times of their lives.[52] As long as there are significant differences in the services offered by clinics and GPs, it appears that the existence of a choice of providers will remain a key element in the successful use of contraception in Great Britain.

The relationship between the distribution of methods and the service delivery system is perhaps best understood by imagining other potential arrangements. In particular, it can be seen that the GPs' focus on the pill is really a double-edged sword: If clinic services were expanded to the point where they attracted a much larger share of all users, the net effect could potentially be that a larger proportion of women would be using less-effective methods; on the other hand, if clinics were virtually eliminated because of budgetary constraints, the net effect might well be an even greater level of pill use, or perhaps even more women opting for sterilization. While this is a simplistic model and does not take into account women's preferences for certain types of providers and their willingness to adopt the pill in lieu of other nonmedical methods or no method at all, it does highlight the fact that the current dependence on GPs, despite its shortcomings, contributes to a high level of use of a very effective method.

If current trends continue, it is most likely that the family planning delivery system in Great Britain will undergo some changes in the near future. A steadily increasing number of young GPs are receiving the necessary training to allow them to provide more comprehensive contraceptive services. In time, this could mean that more women will perceive GPs as a reliable and convenient source for most reversible methods, although the pill may still be the physician's method of choice for most patients. Clinics, on the other hand, have developed an excellent reputation in the field of family planning in Great Britain and will probably play an even greater role as "experts" in dealing with method problems, sterilization and special services (such as subfertility and psychosexual problems), and as key providers for special groups such as adolescents.

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The Delivery of Family Planning Services In the Netherlands

By Aida Torres and Elise F. Jones

The extensive use of reliable modern methods of contraception in the Netherlands has been stimulated by changes in social attitudes toward sexuality, by concern over the efficacy of traditional methods and by improved access to services.

Background

Of the five case-study areas, the Netherlands has the lowest fertility rate, the lowest abortion rate and appears to have the lowest ratio of unplanned to planned pregnancies. Use of effective methods of contraception is quite high: Fifty-six percent of Dutch women aged 15–44 are protected by sterilization, the pill or the IUD. This report explores some aspects of the provision of health care and family planning services in the Netherlands that may help to explain this impressive contraceptive behavior.

The Dutch health care system emphasizes preventive care, with the family physician, who is a general practitioner (GP), acting as the entry point into the system.[1] Almost all residents in the Netherlands are registered with a GP, the choice of GP being left to the individual. These physicians, the majority of whom are men, are consulted first for all medical problems; they provide all routine medical services, arrange for their patients' hospital stays and refer patients to specialists for sterilizations, abortions and other services they are unable to provide.

Nationally, there are 40 GPs per 100,000 population in the Netherlands, as compared with 31 per 100,000 in the United States.[2] GPs are fairly equally distributed throughout the 12 Dutch provinces. Over 60 percent of GPs are in solo practice, 33 percent are in a partnership or group practice and about seven percent work in health centers.[3]

Almost all family physicians participate in a government-sponsored health insurance plan administered by the Sickness Fund Council, a quasi-governmental body that determines health care standards and regulates the rates and fees charged by service providers. Provincial and municipal authorities implement the council's policies and contract with local doctors, pharmacists, hospitals and other health care providers for their services. Family physicians who are affiliated with the national insurance plan are reimbursed according to the number of covered patients they serve; patients who are not covered by the plan pay the doctor for services rendered and are eligible for full or partial reimbursement by private insurance.[5] Although there are some public health facilities, many hospitals and other health care facilities, including an important network of infant health centers, are operated by private organizations or foundations that are supported by government funds; in order to obtain these funds, institutions must comply with regulations established by the council.

Every resident in the Netherlands is covered to some extent by national health insurance plans financed by central government revenues and by employer and employee contributions. These plans differ according to the segment of the population included and the health services covered.[6]

The broadest scheme, the Exceptional Medical Expenses Fund, covers the medical costs of extensive illness for all residents of the Netherlands, regardless of their income. To finance the fund, employers are required to assume the costs for their employees, and self-employed residents pay a premium based on income. Those who are over the age of 65 do not have to pay for this insurance.

In addition to coverage for extensive illness, roughly two-thirds of the population currently have Sickness Fund insurance, a government-sponsored plan that covers all basic medical expenses such as physician visits, medical supplies and hospital care for illnesses of short or moderate duration. Sickness Fund insurance is compulsory for everyone whose income is below $19,600 (U.S.),* which is roughly equivalent to the average family income.[7] The Sickness Fund is financed by both employer and employee contributions: A premium amounting to about 10 percent of each employee's wages is paid into the fund by employers, who deduct half from the employee's salary. The unemployed, including full-time students and the disabled, are covered by the insurance without having to pay a premium. Self-employed residents whose incomes do not exceed the cutoff may enroll in the plan on a voluntary basis. People with incomes exceeding the limit and under age 65 are expected to obtain private insurance.

Nearly everyone is covered by either public or private isurance. In 1982, about one-fifth of the population were covered by private insurance, and roughly four-fifths were covered by public insurance.[8] However, since that time, the proportion of the population covered by public insurance appears to have declined as a result of a lowering of the income threshold for compulsory insurance.

In 1983, 70 percent of the total cost of health care in the country came from national health insurance funds—27 percent from the Exceptional Medical Expenses

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Aida Torres and Elise F. Jones are senior research associates at The Alan Guttmacher Institute. The authors would like to thank those in the Netherlands who consented to be interviewed during the course of this study.

*Dutch guilders have been converted to U.S. dollars at a rate of 2.45 guilders to the dollar.

Fund and 43 percent from the Sickness Fund. About 25 percent of total health care costs were paid by individuals and private insurance, and five percent were financed through direct government subsidies to health service institutions.[9]

GPs and Family Planning Services

Most family planning patients obtain contraceptive services from their family physician. Doctors are not required to raise the subject of birth control with their patients but always provide information, services or referrals upon request. Contraceptive services are free to all patients enrolled in the Sickness Fund; some, but not all, private insurance plans also cover the costs of these services. The Sickness Fund has covered the cost of prescriptions for the pill, the IUD and the diaphragm since 1971, and has financed sterilizations since 1973.[10] The morning-after pill is also offered under the publicly financed scheme. Nonprescription contraceptives are not covered by insurance; although the condom, foam, jellies, creams and suppositories are readily available, the sponge is not.

There is no law or public policy requiring parental consent or notification as a condition for adolescents' obtaining contraceptive services; doctors are required to respect all requests for confidentiality.[11] Nevertheless, some adolescents are reluctant to ask their family physician for contraceptives for fear that their parents will find out. Although bills for patients covered by private insurance are sent to the home, it is possible for teenage patients who do not want their parents to be billed for a visit to pay directly for the contraceptive services or supplies they receive. Patients who prefer to seek the services of another GP for contraception would have considerable difficulty finding a physician willing to see them unless their situation were urgent.

Because the Dutch public is quite sophisticated about birth control, most doctors assume that women who seek family planning services are well-informed about their contraceptive options. On average, contraceptive visits provided by family physicians last only 7–10 minutes.

The low-dose pill is the method most commonly prescribed by family physicians because it is considered to be effective, reliable and useful for maintaining cycle control. There seems to be general agreement among doctors that the long-term health risks associated with low-dose oral contraceptives are small; currently, there is growing support among doctors for making the pill available without prescription and for changing the duration of pill prescriptions from six months to one year.

When a patient requests the pill, her doctor is likely to discuss its possible short-term side effects rather than its long-term health effects. Doctors are not required to discuss the latter, nor is a pelvic examination necessarily required before prescription of the pill. A protocol for family doctors reviewed by the Dutch Society of General Practitioners states that unwarranted medical advice or examination results in inefficient use of the doctor's time and causes undue anxiety and insecurity among patients, particularly young patients.[12] The protocol suggests that it is preferable for doctors to spend their time assessing and monitoring the suitability of the pill for the patient rather than discussing its possible long-term health effects.

Women who request the pill are usually given a six-month prescription and are counseled about method use. Patients are asked to come back for renewal of the prescription, and return visits are usually handled by the doctor's assistant.[13] At return visits, before the doctor prescribes another six-month supply, the doctor's assistant will generally ask the patient if she has noticed any side effects related to pill use; however, the assistant is not required to review with the patient all of the possible side-effects pill users may experience.

Although the number of family physicians who provide the IUD is increasing, it is generally believed that more than 50 percent still refer patients who want an IUD to a gynecologist, most of whom are affiliated with hospitals or outpatient clinics. GPs who provide IUDs are likely to do fewer than 10 insertions a year. The physicians who offer IUDs generally assess the patient's health, perform a medical examination and counsel the patient on method use. Return visits for IUD checkups are handled by the doctor. (Patients referred to a specialist for IUD insertions are asked to return to the family doctor for follow-up visits.)

Doctors more or less actively discourage the use of other reversible contraceptive methods because they consider them to be much less reliable than the pill or the IUD. The diaphragm is rarely prescribed, condoms are advocated mainly for prevention of sexually transmitted diseases (STDs), and spermicides are usually prescribed only in conjunction with other methods, such as the condom, or with initial use of the IUD.

Clinics and Other Service Providers

Although most family planning patients obtain contraceptives from their own physicians, private family planning clinics constitute a small but important network for the provision of contraceptive information and services. Clinics are viewed as places where services can be obtained anonymously, and where women clinicians provide the privacy and reassurance sought especially by teenagers and members of cultural minorities. Unlike the offices of family physicians, whose visiting hours are usually limited to weekdays, many clinics are open in the evenings and on weekends. In addition, although appointments are preferred, clinics accept drop-in visits from women seeking the morning-after pill, abortion referrals or other emergency services.

The largest network of family planning clinics in the Netherlands is run by the Rutgers Foundation (in Dutch, Rutgers Stichting), a private, nonprofit organization, which has 36 clinics throughout the country. The clinics provide a broad array of family planning services to all who seek them, but their primary focus is on the delivery of contraceptive services to immigrants (who make up six percent of the population) and young people—two groups that have been singled out by the government as needing special attention.

About 90,000 patient visits were made to Rutgers Foundation clinics in 1986.[14] A majority of visits (about 60 percent) were made by women aged 18–25, and 12 percent were made by young teenagers. Sixty-six percent of patient visits were for the pill (including the morning-after pill), seven percent were for the IUD, six percent were for the diaphragm and one percent were for contraceptive injections. The remaining 20 percent of visits were made for other purposes, such as screening and treatment for STDs, pregnancy testing, and counseling and referral for sterilization and abortion.[15]

The foundation receives considerable support from the government, which provided 70 percent of its total budget in 1986; patient fees cover the rest of the clinics' expenses.[16] The standard fee for a contraceptive visit is $11. However, patients who have a written reference from their family physician are entitled to free services, and government subsidies partially cover the cost of visits made by adolescents under the age of 18, who need pay only $5 a visit. Small municipal grants also help to subsidize visits made by women aged 18–20, and student insurance often covers the service fee. Although the cost of all prescription contraceptives dispensed at the clinics is covered by the Sickness Fund, women under age 20 who are not covered by the fund and who cannot afford to pay are given supplies for free.

The foundation also provides free family planning services to immigrant women who bring their infants and young children for medical checkups to the publicly funded infant health center in Amsterdam. (In the Netherlands, well-baby care is widely available, and parents are expected to utilize primary health services for their children—over 90 percent of all infants attend infant health clinics.[17]) Translators from the Amsterdam City Council's Interpreter Center participate in this program. Prior to visiting the infant health center, the mother has most likely heard about family planning from the midwife who delivered her baby or from a visiting nurse. During the family planning session, a Pap smear is taken and various methods of contraception are discussed. Immigrant women are most likely to choose the low-dose pill, in which case they are given a six-month supply and asked to return to the clinic or to a general practitioner in six months; those who request an IUD can have it inserted at the center or are referred to a hospital. Rarely do immigrant women request the diaphragm or condoms.

Rutgers Foundation clinics serve as the principal national source of information and counseling on problems related to sexuality and birth control. At 15 of the clinic sites, psychological and sexual counseling is offered to individuals who request such services. In addition, six centers send teams of nurses and social workers to conduct informal sex education sessions and discussion groups at schools and in community centers; the main job of these teams, however, is to train teachers, nurses and counselors in matters related to sexuality and birth control. Because educational and counseling services receive little government funding, the foundation charges small fees for such programs.

The clinics do not do any direct advertising but rely on outreach efforts to inform the public of their services. In 1986, the foundation launched a highly successful campaign that increased the clinic caseload two months later by about 10 percent. The campaign consisted of displaying posters and distributing brochures about birth control, abortion and "safe sex" in subway and railroad stations, at libraries, family doctors' offices and all branch clinics.

In addition to Rutgers Foundation clinics, several smaller organizations offer family planning services. MR' 70 is an independent clinic in Amsterdam that provides birth control and abortion services. The organization receives municipal grants to subsidize its services for immigrant women. However, it relies on insurance reimbursements for abortions and fees from private family planning patients to support its other clinic operations. The full fee for a contraceptive visit is $10, but high school students are charged only $2. The standard rates for IUD and diaphragm fittings are $37 and $25, respectively.

The Academic Hospital in Leiden, which receives government support, operates a variety of outpatient clinics, including a family planning clinic that serves about 2,000 patients a year.[18] Clinic sessions are held one evening and one afternoon a week. During a woman's first visit to the clinic, she is counseled about various contraceptive methods and receives a complete checkup, including a gynecological examination, Pap smear and a breast examination—a standard practice that may have been dispensed with under new policy guidelines that were being formulated at the time of the site visit in February 1987. The initial visit concludes with instructions on method use and scheduling for follow-up visits. Once a week, the staff visits the hospital's maternity ward to provide birth control information to mothers interested in family planning.

Pharmacists also play an important role in the distribution of contraceptive supplies and the dissemination of birth control information. Pills and diaphragms can be obtained from pharmacies upon presentation of a doctor's prescription. IUD users obtain the device from a pharmacy and bring it back to the doctor for insertion; the same procedure is followed for patients who obtain injectable contraceptives. Clients who are insured by the Sickness Fund pay a basic prescription fee of $1 for prescription drugs; those who are not insured by the fund pay $17–$21 for a six-month supply of pills. Condoms and spermicides are available at pharmacies without prescription but are not covered by insurance: Condoms cost $2 for a packet of three, and spermicidal creams, jellies or foams cost $6–$9. Condoms and spermicides are also available in vending machines, supermarkets, newspaper shops and hair salons.

Pharmacists are required to tell patients how to use the methods they dispense. However, information about the possible health risks associated with a method are routinely included in package inserts. For example, the insert that accompanies the high-dose pill (50 mcg of estrogen) includes a list of medical conditions that contraindicate its use and warnings about reported adverse reactions related to taking hormonal contraceptives, ranging from such minor side effects as headaches, weight changes and breakthrough bleeding to more serious complications, such as liver dysfunction and cardiovascular disease. The insert also cautions users not to take certain drugs while on the pill and warns of the increased risk of vascular disease, especially among smokers. On the other hand, the package insert for the low-dose pill (30 mcg of estrogen) emphasizes the method's benefits and downplays its possible side effects; nevertheless, it warns users against smoking cigarettes while on the pill.

Specialized Services

Patients who seek sterilizations, abortions or, in some cases, the IUD are referred by their family doctor to obstetrician-gynecologists. There are no restrictions on sterilizations regarding the age of the patient, the number of children she has or the need for special consent; in addition, sterilizations are free for patients covered by Sickness Fund insurance. In 1984, about 32,500 vasectomies and 28,500 female sterilizations were performed by specialists in outpatient clinics, hospitals and private family planning clinics that specialize in sterilizations.[19] Although vasectomies are always performed on an outpatient basis, three-quarters of publicly financed female sterilizations are performed in hospitals, and patients usually require overnight inpatient care.[20]

Eight private family planning clinics in five major cities specialize in sterilizations—five perform both male and female sterilizations and three perform vasectomies only. However, these clinics account for only a very small proportion of all sterilization procedures obtained by residents of the Netherlands. As more physicians affiliated with outpatient clinics or hospitals have begun performing sterilizations, specialized clinics have come to serve a smaller proportion of the national caseload. The full fee charged by specialized clinics to paying patients ranges from $123–$163 for a vasectomy and from $204–$327 for a laparoscopy.[21]

In the Netherlands, abortion is regarded as a backup service, not as a method of birth control. Although abortion was legalized in 1981, the regulations governing its practice were not formally adopted until three years later. However, even before the law was passed, abortion had been widely available in private, nonprofit clinics and in some hospitals.[22] The law states that first- and second-trimester abortions may be performed in hospitals and nonprofit clinics after a five-day waiting period. Menstrual extractions, which have always been counted as abortions in the Netherlands, are not subject to the five-dav waiting requirement.

Parental consent for abortions is theoretically required for women under age 21; but in practice, women aged 16 or over can obtain abortions without the consent of their parents. Since November 1984, residents may obtain abortions free of charge under the government-sponsored national health insurance system. The Exceptional Medical Expenses Fund covers the cost of abortions performed in clinics,[23] and the Sickness Fund or private insurance companies cover those performed in hospitals.[24] Payment by the Exceptional Medical Expenses Fund for clinic abortions has not caused a rise in rates; rather it has caused a shift in the balance of providers from hospitals to clinics.

In addition to MR' 70, which is a member of a voluntary, nonprofit group called Stimezo (the National Abortion Federation of the Netherlands), seven other Stimezo-affiliated clinics provide abortion services, as well as contraceptive services.

Contraceptive Use

The overwhelming preference of the Dutch for highly reliable methods of contraception is reflected in the patterns of method use among women of all ages. In the mid-1970s, just 10 years after the introduction of the pill, oral contraceptive use in the Netherlands reached by far the highest level reported anywhere in the world.[25] By 1975, 42 percent of Dutch women aged 15–49 either were using the pill or were protected by male or female sterilization (36 percent and six percent, respectively).[26] By 1981, 49 percent of such women were relying on the pill or sterilization (29 percent and 20 percent, respectively). As can be seen, the seven percentage point net increase in the use of these highly effective methods was due entirely to an increase in the use of sterilization; pill use actually declined by seven percentage points during this period, mainly because of widely publicized reports about the possible long-term health effects of this method.[27]

A total of 2.3 million pill prescriptions were written in 1986:[28] Family physicians wrote about 90 percent of them, physicians working in family planning clinics wrote five percent and gynecologists accounted for the remaining five percent.[29] Among women who were using the pill, 18 percent were under 20 years of age, 53 percent were aged 20–29, 22 percent were aged 30–39 and eight percent were aged 40 or older.[30] Seventy-five percent of pill users belonged to the Sickness Fund, and were therefore entitled to free services and prescriptions.

Findings from the 1982 Netherlands Fertility Survey indicate that method reliability is the principal reason women switch from less-effective methods to sterilization or the pill. Among women who switched from the condom to the pill, 70 percent of those under age 30, and 63 percent of those over age 30, indicated that reliability was the main reason for changing methods. The next most frequently cited reason for switching from condoms to the pill was method convenience. On the other hand, medical and psychological reasons were the main reasons women gave for switching from the pill to the IUD, the condom or other less-effective methods.

Almost all the women who were using the pill or the IUD at the time of the survey intended to continue using the same method. Women who were using other reversible methods (the minority of total users) were more likely to want to change their method. Overall, only eight percent of all users intended to switch methods; most women who contemplated changing their method expected to adopt sterilization or the pill.

One issue that causes some concern among medical and health professionals in the Netherlands is that the wider acceptance of contraceptive sterilization may result in increased instances of sterilization regret. The most common cause for regret is "broken relationships," and the number of couples facing separation and divorce has been increasing.[31] Furthermore, concern over the adverse long-term health effects of the pill is the principal reason for the rapid increase in the number of sterilizations, although resort to sterilization because of the drawbacks of reversible methods appears to increase the risk of subsequent regret.[32]

Information and Education

Over the past 20 years, knowledge about reliable methods of contraception has improved greatly and social attitudes toward sexuality and birth control have changed dramatically. Government-sponsored information programs and the media, in particular, have played a major role in disseminating birth control information to the public. Information and interpreter centers, established specifically to assist young people and immigrants in gaining access to health services, are funded by the government. The Children's Telephone Assistance Service has set up a hot line that operates daily from 4 PM–8 PM for young people with problems. The hot line receives about 80,000 calls annually; 25–30 percent of the calls are related to sexual matters and birth control, and another 15–20 percent are about relationships.

In 1976, the Ministry of Health and Environmental Protection established the Agency for Information on Health Care for Immigrants to help assimilate immigrants into the health care system. The agency is completely subsidized by the government and is supervised by a number of national health organizations whose main activity during the past 10 years has been to provide immigrants with translated, easily readable educational materials on all aspects of health care, including family planning. In addition, the agency sponsors a program that trains immigrant women to teach health education to their compatriots.

Although it has not been formally integrated into the curriculum, sex education is available in secondary schools to a limited extent; some teachers provide information about contraception, and some conduct informal group discussions about sexuality. In addition, a sex education course for high school biology teachers is taught at the University of Leiden with funds from the Ministry of Education. The university has also been involved in developing a high school biology textbook that includes information on contraception. In 1985, a law was passed opening the way for the introduction of health education into the primary schools, which may include information on sexuality and birth control.

Many people believe that the widespread use of reliable methods in the Netherlands has resulted mainly from open presentation and discussion in the media of matters related to sex and birth control. Radio, television and magazine coverage of sexual issues and contraception is geared toward educating the public, not toward sensationalizing sexual topics. A popular television show aimed at young people often covers topics related to sexuality, relationships and contraception. In addition, *Libelle*, the most widely read women's weekly magazine in the Netherlands, is a major source for birth control information. In the past few years, AIDS has been covered extensively by the press, radio and television and has focused public attention on the need for safe sex practices.

Additionally, a network of 80 counseling bureaus across the country (including the Rutgers Foundation clinics) serve as information centers, providing guidance and referrals to anyone in need of assistance with problems related to sexuality and birth control. These bureaus, which are all operated by private and charitable organizations, provide medical, psychological and social assistance as well as public information and referral services. Each week, at least 6,000 people, three-quarters of whom are women, call or visit the centers for information or guidance.[33] More than half of all requests are for information about sexual problems and birth control, 35 percent are to make appointments for checkups at family planning clinics or other facilities, five percent are for emergency referrals to doctors or family planning clinics, and the remaining seven percent are to purchase condoms or to obtain general information.

Brand-name advertising of prescription contraceptives is forbidden by law except in medical journals. However, the law requires that package inserts contain information on the long-term risks of the method and important facts about symptoms related to method use that the users themselves can detect. Once the authorities have approved the text of an insert, consumers may not bring product liability suits, as U.S. consumers have done in the case of the IUD, for example.

Conclusions

In the Netherlands, contraception is encouraged by the government, the medical profession and the media, and is widely accepted by the public. The extensive use of reliable modern methods has been stimulated by changes in social attitudes toward sexuality and birth control, by concern over the efficacy of traditional contraceptive methods and by improved access to services. The fact that primary health care is centered around family physicians who are likely to promote the pill may partially account for the pill's rapid acceptance and continuing widespread use. Nevertheless, a very high proportion of couples eventually turn to surgical sterilization, perhaps in part because of concerns about prolonging pill use into the later years of reproductive life.

The inclusion of contraception in the package of services covered by national health insurance has also contributed to the widespread use of effective methods of contraception. Contraceptive services and supplies provided by family physicians are free for most patients. In addition, contraceptive services offered at some family planning clinics are partially subsidized by the government and are consequently inexpensive.

Despite the overall high use of effective birth control methods and the low rates of abortion, compared with other developed countries, the Dutch themselves consider their situation far from ideal. Many adolescents do not use reliable methods, particularly at first intercourse,[34] and women under age 20 constitute a significant proportion of abortion patients.[35] Fear of adverse parental reaction and lack of awareness that doctors are required to respect their right to confidentiality combine to dissuade some adolescents from approaching their family doctor for contraceptives. In addition, lack of information about clinic locations and the cost of clinic services, however small, may still present barriers to effective contraception among young people.

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Cover design by Bob Ciano. Photos, p. 83: Toronto Department of Public Health; p. 85: Paul Till, Toronto Department of Public Health; p. 91: Blair Seitz, Photo Researchers; p. 94: Yvonne Freund, Photo Researchers.

Perspectives is indexed in *Cumulative Index to Nursing and Allied Health Literature, Current Contents, Human Resource Abstracts, Index Medicus, PAIS Bulletin, POPLINE Previews, Population Index, Psychological Abstracts, Review of Population Reviews (CICRED), Sage Family Studies Abstracts, Social Sciences Citation Index* and *Statistical Reference Index.*

The Delivery of Family Planning Services In Ontario and Quebec

By Stanley K. Henshaw and Elise F. Jones

The Health Care System

Health care in Canada, including family planning services, is provided primarily by office-based physicians and is financed by universal health insurance, which is administered by each province. Provinces are not required to provide health insurance, but all have done so since the Canadian federal government passed legislation in 1967 providing generous federal subsidies for universal coverage. Overall, 57 percent of the public expenditure for health care in Canada is paid by the provinces, 42 percent, by the federal government and one percent, by the municipalities.[1] Three provinces impose premiums to help finance their share of the cost. In Ontario, for example, each family pays $400 a year for coverage.* The fee is often paid by employers and is waived for families on welfare and for residents aged 65 and older. Low-income families not on welfare can obtain a fee subsidy. Consequently, only a few residents, those who have failed to pay the necessary fees, lack health insurance.

> **"The family planning clinic systems in Ontario and Quebec . . . are better able to focus their efforts on counseling women of all social classes because they don't need to provide basic services to large numbers of low-income women."**

All provinces pay for both hospital and physician care as part of universal coverage. The specific services covered differ from province to province. Ordinarily, no fee is paid at the time of a health care visit. The patient simply shows his or her insurance card, and the provider is reimbursed directly. When services are obtained outside the patient's home province, the patient pays and applies for reimbursement. Physicians are reimbursed for each service rendered, rather than for each patient they care for. Thus, it is easy for a patient to go to different physicians for different services or to change physicians. Physicians can charge patients for services not covered by the health plan. The provincial insurance plans do not cover the cost of drugs used outside of hospitals unless the patient is on welfare.

Most primary care is provided by general or family practitioners. The provinces attempt to limit the number of specialists by, for example, limiting specialist care to patients referred by a general practitioner, as Ontario does; in Quebec, patients may consult specialists directly but are usually referred.

In 1983, there were 196 physicians per 100,000 population in Canada, as compared with 194 per 100,000 in the United States.[2] According to 1981 data, the physician-to-population ratio in Ontario and Quebec is slightly higher than that for Canada as a whole.[3] Although the number of physicians per capita is similar to that in the United States, about half of Canadian physicians are general or family practitioners;[4] in the United States, only 16 percent are.[5]

Satisfaction with the health care system appears to be extremely high, with the result that the attitude of officials toward the care offered and toward the accessibility of services could be characterized as complacent. A number of Canadian physicians are foreign-born, so non–English-speaking immigrants are generally able to find physicians who speak their language. There is some concern that areas with sparse populations are underserved;[6] in Quebec, new physicians are reimbursed at higher rates for the first three years of practice if they locate in a rural area.

Contraceptive Practice

Although contraceptive use was widespread, the distribution of contraceptive methods and the provision of information on family planning were indictable offenses in Canada until 1969, when contraceptives were legalized. Since then, family planning services have been provided by special clinics as well as by office-based physicians. With a few exceptions, the contraceptive methods available to Canadians are the same as those available in the United States. The IUD is still being offered, although publicity about its withdrawal from the U.S. market may have increased Canadians' caution about using this method. Morning-after pills, while not approved for use as a postcoital contraceptive, are widely available in clinics nonetheless. The cervical cap, which is not regulated by the government and can be used without prescription, also appears to be obtainable in many family planning clinics in Canada. On the other hand, the contraceptive sponge has not been approved for use, and there are fewer brands of spermicidal suppositories than there are in the United States. Triphasics are the most commonly used contraceptive pill.

The contraceptive method most frequently used by Canadians is sterilization, followed by the pill, the condom, the IUD and other methods. In addition to having a higher overall level of contraceptive use than Americans have (69 percent among women of reproductive age in Ontario, 71 percent in Quebec and 55 percent in the United States), Canadians rely less on "other" methods (principally the diaphragm, spermicides, withdrawal and

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*Unless otherwise specified, dollar figures are in U.S. dollars, converted at the rate of U.S. $0.75 equals Canadian $1.00.

periodic abstinence) than do Americans. Married Canadian women aged 35–44 are much more likely to rely on sterilization than are their U.S. counterparts (59 percent in Ontario, 65 percent in Quebec and 42 percent in the United States*), and a larger proportion of unmarried Canadian women aged 20–29 than of comparable American women use the pill (48 percent in Ontario, 39 percent in Quebec and 25 percent in the United States). In short, Canadians appear to be more effective practitioners of contraception than are Americans, and largely for this reason, experience lower rates of unintended pregnancy and abortion than do their U.S. counterparts. In the following sections, we examine, for Ontario and Quebec, the main features of the system for delivering family planning services as well as other factors that may underlie the success Canadians have achieved in practicing contraception.

Office-Based Physicians

In both Ontario and Quebec, general practitioners, including specialists in family practice, are the principal source of medical family planning services, and the fees for such services are paid by the provincial insurance plans. Contraceptive supplies, on the other hand, are not covered by the plans. The pill, Canada's most commonly used reversible method, is available only by prescription, and women know to go directly to their family or personal physician to obtain this method. The pills themselves, which cost $7–$11 per cycle, are ordinarily purchased from a pharmacy. Pill supplies are available without charge to patients receiving welfare benefits, and many employers provide supplementary insurance plans that cover drugs.

The majority of general practitioners are not trained to insert IUDs, fit diaphragms or perform tubal ligations, and they usually refer patients needing these services to obstetrician-gynecologists or to family planning clinics. These specialist services, including male and female sterilization, are covered by the health insurance plans of Ontario and Quebec,† as is sterilization reversal.

In Ontario, physician office visits are divided into three levels, from simple to complex, and reimbursement is adjusted accordingly. However, if a visit requires extra counseling, in neither province do physicians feel free to charge for the extra time. Although it is theoretically possible to charge an additional amount, physicians believe that questions might be raised by the health insurance administration, and their reimbursement might be jeopardized. In addition, the reimbursement rate for 30 minutes of counseling is significantly less than the reimbursement for three regular 10-minute visits. Therefore, physicians have a financial incentive to minimize the amount of time spent on counseling.

Physicians do little if any outreach to obtain new contraceptive patients, although they may on occasion raise the subject of contraception with patients they are seeing for other reasons. Parental consent is not required for anyone older than age 13 to obtain family planning services in Quebec, but not all physicians will serve unmarried minors without such consent.[7] Teenagers are said to learn from one another which physicians are willing to serve them. In Quebec, each teenager has a health insurance card, so there is no difficulty in obtaining confidential services once a provider is located. In Ontario, however, teenagers have to use the family insurance card.

The amount of time physicians spend with a new contraceptive patient is difficult to estimate. Physicians report that they spend 15 to 30 minutes; others say that five to 10 minutes would be a more accurate figure. In some practices, a nurse or assistant provides some of the counseling, particularly about how to use a method. Physicians take no active steps to follow up on patients who fail to return for appointments.

Physicians tend to assume that a woman seeking reversible contraception will use the pill, and a woman who asks for the pill is unlikely to be counseled about other methods unless the pill is contraindicated. Other methods will be mentioned to a woman who does not know what method she wants. When the pill is prescribed, a pelvic examination is usually, but not always, performed.

The extent of counseling about side effects of the pill underwent a change in 1984, when a Canadian court decided that Orthopharmaceutical (Canada) Ltd., a maker of oral contraceptives, had not adequately warned doctors about the possible adverse effects of the pill. In 1985, the federal government released instructions for a new informational pamphlet about the pill, to be used as a supplement to the patient package insert. The pamphlet describes the pill's contraindications, risks, failure rates and mortality rates, compared with those of other methods and of no method, as well as the noncontraceptive benefits of the pill. Physicians and other providers tend to rely on the pamphlet to inform patients about the possible dangers of the pill. Although they mention specific symptoms that a patient should immediately report to her doctor, most physicians do not mention the serious problems, such as heart attacks, that could result. Physicians feel that calling attention to serious problems unnecessarily frightens patients, and some doctors mention that the risk of serious side effects is 10 times as great for childbirth as it is for the pill.

Although concern about lawsuits is increasing in Canada, the problem is less acute than it is in the United States. Malpractice insurance for family physicians in Quebec is about $1,200 per year. Insurance for obstetrician-gynecologists who perform surgery in Montreal is going up to $6,000 per year from about $4,000. In contrast, malpractice insurance costs U.S. obstetrician-gynecologists anywhere from $20,000 to $100,000, depending on the state and insurance company.[8]

Sterilization is also widely accepted by physicians, and almost all general practitioners are willing to refer women seeking sterilization to a specialist. Information about the attitudes and practices of Quebec obstetrician-gynecologists regarding sterilization is available from a survey of 215 such physicians conducted in 1981.[9] Eighty-eight percent of the respondents performed tubal ligations. However, in areas outside of Montreal, where there are fewer obstetrician-gynecologists, general surgeons performed one-third of female sterilizations. The majority of respondents said they refused fewer than 10 percent of applicants. Half said they would perform a tubal ligation for a woman aged 25–29 with two children, 40 percent would serve a never-married woman younger than 35, and 65 percent would sterilize a woman younger than 25 under some circumstances.

Overall, barriers to sterilization are minimal. In the past, many hospitals in Quebec required that the procedure be approved by tubal ligation committees, but most such committees have been discontinued. Two-thirds of the physicians responding to the Quebec survey reported that the average delay between request for a sterilization and hospital admission is less than three months. Vasectomies are frequently performed by general practitioners, and here again, barriers are minimal, although vasectomy is less commonly requested than is tubal ligation.

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*The U.S. figure excludes sterilization for noncontraceptive reasons. Adjusted to the Canadian definition, which includes all tubal ligations and vasectomies, the U.S. rate is about 46 percent.

†Quebec has recently ruled that vasectomy is not covered; however, this policy may be reversed. Vasectomy was covered during the period under study.

Until very recently, abortions could not be obtained legally in Canada except under restricted circumstances. A woman who sought a legal abortion faced a number of barriers. First, she usually had to obtain a referral from her general practitioner to a gynecologist who would agree to present her case to a hospital's therapeutic abortion committee. A majority of the members of the committee had to certify in writing that continuation of the pregnancy was likely to endanger the life or health of the woman. Second, even though legal abortions were covered by health insurance, physicians received no insurance reimbursement for referrals and other efforts they made in seeking approval of the abortion. Third, there was no assurance that an application for abortion would be approved. Fourth, the extremely large geographic distances in Canada made it difficult to obtain services, and the hospitals most likely to provide abortions were in the large cities; nationally, only about three hospitals in eight performed any abortions.[10] Finally, many abortion patients had to pay the physician a fee in addition to the reimbursement that the provider received from the provincial health plan.

The restrictive abortion law was challenged in Quebec by Dr. Henry Morgentaler, a physician who opened a clinic in which he performed abortions without the approval of a therapeutic abortion committee. He was prosecuted three times during the 1970s, and each time was acquitted by a jury. Deciding that the federal abortion law was unenforceable, the provincial government discontinued the prosecution of violations and began reimbursement of nonhospital abortion procedures through the provincial health plan. In Toronto, some hospitals routinely approved almost all applicants for abortions, and since 1985, two clinics had been able to perform abortions despite provincial attempts to enforce the law. Although women had to pay for procedures performed in clinics, one health worker estimated that 5,000 women obtained clinic abortions in Toronto in 1986.

In January 1988, the Supreme Court of Canada ruled that the law prohibiting most abortions was unconstitutional. The ruling has made all abortions legal in Canada, pending new legislation.

Ontario Clinics

Although the large majority of women using a medical method of contraception obtain services from general practitioners, both Ontario and Quebec have family planning clinics that serve special functions: They provide intensive contraceptive counseling to women who are seeking a method of birth control for the first time, they serve teenagers and unmarried women who may be reluctant to go to their family physicians, they provide specialized care to women who desire a method not available from their private doctors or who have a problem with their method, and they attempt to educate the public about contraception and reproductive health. As part of the last function, they provide sex education in some schools.

At the time contraceptives were legalized, the federal government started a division of family planning to provide educational materials and other support for contraceptive services. It was under this program that family planning clinics were first established in most of the provinces; in some cases, they were subsidized with federal money as demonstration projects, and in some cases, they received financial support from municipalities, provinces or private, nonprofit groups. The federal government began to cut back its role in the late 1970s, and discontinued its support for family planning programs completely in the 1980s; provincial governments then assumed more responsibility for the support of clinics.

In Ontario, the family planning clinics are operated by "health units," which are comparable to local health departments in the United States. The health units provide a variety of health services, including screening tests for children, immunizations, home nursing visits, investigation of communicable and sexually transmitted diseases, health inspections, parenting education and health promotion activities, as well as family planning education and services. The provincial government gives high priority to the family planning functions of the health units and provides most of the funds used for that purpose.

Each health unit serves a catchment area, some of which are very large and sparsely populated. The Porcupine Health Unit, for example, serves an area in central Ontario the size of East and West Germany combined. In large districts such as this, there are satellite clinics staffed by personnel who divide their time between several different locations. Most of a unit's family planning services are provided in clinics organized for this purpose, but some are provided in multipurpose clinics. Of the 43 health units in the province, all have family planning coordinators who do outreach, and 31 also provide family planning services through a total of 47 clinics. In a few locations, the health units have subcontracted with affiliates of the Planned Parenthood Federation of Canada to provide the needed family planning services.

The family planning clinics are expected to try to refer their patients to general practitioners as soon as possible. For example, after a new pill user has been counseled and has demonstrated that she can use the method without problems, she is encouraged to go to a private physician for prescription renewals and continuing care. In some cases, the clinics provide only counseling and refer patients to a private physician for their initial prescriptions.

The clinics serve primarily young and unmarried women; there is no age requirement for patients. In 1985, 52 percent of patients were younger than 20, and 84 percent had never been married. One study of teenage clinic patients found that 16–18 percent of new patients had never had intercourse.[11] Sixty-three percent of clinic patients were self-referred; others had been referred by friends, personnel within the health unit, physicians, schools and hospitals. Among patients who received services other than just counseling, 13 percent had pregnancy tests.

In 1985, the Ontario clinics reported 81,000 patient visits for medical family planning services and 62,000 visits for counseling; 54,000 patients were served for the first time. Since 70,000–80,000 women reach the age of sexual activity each year in Ontario, the family planning program reaches a majority of the province's women during their early years of contraceptive use.

One clinic in Toronto is devoted to serving six immigrant communities: Chinese, Italian, Portuguese, Hispanic, Vietnamese and West Indian. The facility employs counselors from the communities who speak the appropriate languages. Although almost all of the clinic's clients have family doctors, most of whom speak their language, clinic personnel believe the doctors usually do not provide adequate information and counseling about contraception. The clinic disseminates outreach materials within the various communities and at workplaces with large numbers of immigrant women. A majority of the clients are older than 25; younger women, who get information from school and speak English, are less likely to attend the immigrant clinic.

The province requires the clinics to accept all patients, to offer nonjudgmental, comprehensive counseling and to provide whatever method a woman chooses—either at the facility or by referral. Unlike many of the general practitioners, the clinics insert IUDs, fit diaphragms and train patients in periodic abstinence, and some patients are referred by their physicians for these services. (As with general practitioners, however, the prevailing attitude at the clinics seems to be that these methods are for women who have a problem with the pill.) Clinics provide postcoital contraception, which many physicians refuse to provide; in a major clinic in Toronto, 7–8 percent of first visits are for postcoital contraception. Patients desiring sterilization are referred to specialists.

Medical services in the clinics are usually provided by local physicians hired by the session. Patients may not see the same physician at each visit, but they usually see the same nurse. Satellite clinics often have no physician, even part-time, so patients are referred to an outside physician or to another clinic after counseling.

The demand for services at family planning clinics is small enough that a generous amount of time can be spent with each patient without creating long waiting times. There is a heavy emphasis in the clinics on counseling, usually done by a nurse, to see that teenagers are motivated to prevent pregnancy and that new contraceptive users are able to use their method effectively. At the first visit, a new patient may have three counseling sessions: a brief initial interview with a nurse, a one-hour group teaching session and an individual counseling session in which the patient's history is taken. A second visit is often necessary to see the physician and obtain a prescription; a temporary nonprescription method is sometimes provided.

The counseling usually covers foam, the condom and postcoital contraception, as well as the pill. The diaphragm may be mentioned in passing, but periodic abstinence, the IUD and sterilization are not necessarily mentioned to the average patient, who is young and nulliparous. In some instances, the disadvantages of early childbearing are discussed, particularly with those who come for pregnancy tests that prove to be negative.

Clinics provide oral contraceptives without charge to new users and to low-income women who are unable to purchase them from a pharmacy. A few clinics sell pills to patients who can pay, and use the profits to help support the clinic, but this is a controversial practice that may violate laws governing the dispensing of pharmaceuticals. As with visits to an office practitioner, a pelvic examination is normally performed before oral contraceptives are prescribed to clinic patients. The pamphlet describing the possible side effects of the pill is distributed, but neither office nor clinic physicians seem to feel that they need to inform patients of the worst potential effects of the pill. The first follow-up visit is usually scheduled three months later; thereafter, patients who require clinic care or who strongly prefer it are scheduled for visits every six months or each year, depending on the age and circumstances of the patient. Generally, no effort is made to reach a patient who does not return as scheduled, and it is common for patients not to return for follow-up visits.

A public health nurse counsels Toronto high school students on birth control.

When the caseload is low, outreach activities (education in the schools on sexuality and contraception, sessions with interested community groups, participation in health fairs, setting up of booths in malls and occasional advertising through posters or other media) are stepped up to increase the number of patients. When the caseload is high, more time is spent on patient care and less on outreach; thus, the system remains in equilibrium. Another factor limiting the caseload is the practice of encouraging patients to switch to private physicians for ongoing care unless they have special reasons for needing clinic services.

The family planning coordinators are public health nurses in all health units except Toronto's, where individuals with social work or other types of training are used for outreach. Coordinators contact the schools periodically with an offer to provide information about contraceptive methods and services or other types of sex education to students. Several of the public schools in the Porcupine Health Unit's jurisdiction—and occasionally a Catholic school—invite the family planning coordinator to make such presentations. Most nurses in the public schools and some in the Catholic schools will refer students to the clinics for contraceptive services. It is common for schools to give students a pass to attend the clinic during school hours.

Quebec Clinics

Two types of organizations provide the large majority of family planning clinic services in Quebec: a system of local health centers (centres locaux de services communautaires, or CLSCs) that perform functions typical of public health units and hospital outpatient facilities. The CLSCs are community health and social service centers controlled by local boards and funded by the province to serve a specified geographic area. About 100 CLSCs cover most of the more populated sections of the province.

The CLSCs tend to be ideological in inclination—sometimes socialist, sometimes antiphysician. Some concentrate on mental illness, aging or preventive services rather than primary health care, while others provide general medical care; most have family planning clinics. About 10 percent of the population of the province received health care from the CLSCs in 1980. In the past, the province specified a minimum amount of money that was to be spent on family planning, but to a large extent, the CLSC boards now decide how all funds are used, and the emphasis given to family planning has declined, in part because of antiabortion pressure.

The CLSC physicians are usually general or family practitioners who are paid by the clinic session; a much larger proportion are women than is the case among all general practitioners. The CLSCs generally have one or two sessions a week with a physician present, and an appointment is usually necessary to see the physician. In some centers, appointments have to be scheduled several weeks in advance. The clinics also employ nurse practitioners, who sometimes perform pelvic examinations and provide the pill when a physician is not present.

As in Ontario, family planning clinics in Quebec attempt to target their services to new users and women with special problems, and the proportion of women served by CSLCs or hospital clinics is probably similar to that in Ontario. One-fourth to one-half of CLSC family planning patients are teenagers. Other patients use the CLSCs because they want a method not available from their physicians, they are concerned about confidentiality and prefer not to go to their family physician, they want the supply of free pills that is available, they prefer a female physician or they like the greater amount of professional time they receive at a clinic. Some come to the clinic as abortion patients and continue as family planning patients. Quebec clinics seem more relaxed than those in Ontario about providing contraceptive services for several years if a woman is content with the care given.

The extent and type of outreach varies among CLSCs. Many patients hear about the family planning services through the clinics' sex education activities in the schools and their work with community groups. The public school nurses, who are under the jurisdiction of the CLSCs, are a natural source of referral. To make their services better known, clinics may occasionally advertise in newspapers or on the radio. Low-income women are not a particular target for the CLSCs because they are considered to have access to office-based physicians.

The only fee for family planning services is the $12 that is charged to patients who can afford to pay for the IUD. Oral contraceptive patients are given their first cycle of pills free, and additional cycles may be given to those who cannot afford to buy them from a pharmacy or who do not have employment-related insurance for drugs.

Providers clearly believe that the pill is the best method, especially for teenagers, and it is the method most frequently prescribed by the clinics. After a woman has had two children, sterilization is considered appropriate if she wants to terminate childbearing. For a woman older than 35 who smokes but is not ready for sterilization, the IUD would probably be recommended; the IUD is also used by many women aged 25–35, especially those who smoke. Other methods may be mentioned by providers, but these three methods are likely to be given the most serious attention. Diaphragms are available, and training in periodic abstinence may be offered in some locations, although many clinics refer patients desiring this method to organizations devoted to its promotion. Morning-after pills are provided in most clinics.

Patients requesting the pill generally receive a pelvic examination at the time the prescription is provided, but practice varies. One CLSC allows a nurse to provide the pill without a pelvic exam, and the patient is then scheduled to return in one to three months for the physical. Another CLSC's policy is not to do a pelvic examination if the woman has never had intercourse, although she will be supplied with pills.

Clinic physicians are said to spend 15–30 minutes or more with family planning patients, which is more than the time spent by physicians in private practice. The fact that clinic physicians are paid by the clinic session rather than by the service provided may account for the difference. A pill patient sees a nurse as well as a physician; the nurse spends between 30 minutes and one hour with the patient. There is no standard procedure for follow-up of patients who fail to return for appointments.

During the time spent with the patient, the nurse takes the patient's history and discusses methods, sexuality, the risk of sexually transmitted diseases, the patient's menstrual cycle and her general health. The nurse also takes the patient's blood pressure and records her weight. The information provided by doctors and nurses about the side effects of the pill covers spotting and other minor side effects. The patient is instructed to contact the provider immediately if certain signs of major problems occur, but little else is said about these problems or the likelihood of their occurring. Clinics rely on the pill pamphlet to inform patients about possible major health consequences of pill use.

Other fertility-related services offered by the CLSCs include free pregnancy tests, treatment for sexually transmitted diseases and abortion services or referral. Each of these services can be a source of family planning patients.

A number of the hospitals in Quebec, including eight in Montreal and several in other cities, have clinics that provide family planning services. Several of these clinics, called "Lazure clinics" after the cabinet minister who proposed their creation, were established under a provincial program begun in 1977 to improve reproductive health care by providing, among other things, infertility services, abortion and sterilization, as well as family planning. While there are fewer hospital clinics than CLSCs, the hospital clinics appear to serve more family planning patients per clinic and to be of almost equal importance in the provision of services.

As with private physicians and CLSCs, hospital clinics do not charge patients except for IUDs, which cost $14–$17. The hospitals see their mission as similar to that of the CLSCs—providing services not available from general practitioners, including counseling for new contraceptive users and women with special problems. There is little active outreach; most patients come to the programs by referral from physicians, school nurses and others, or they come for related reproductive health care and stay for contraceptive care. Activities that may increase a program's visibility in the community include provision of continuing education for physicians and presentations to schools and community organizations.

Some of the hospitals serve primarily poor or working-class clients, in part because these groups traditionally used hospitals for health care before universal health insurance was initiated. Others use the hospitals because they want the extra counseling provided, they do not want to go to their family doctor for such services as treatment of sexually transmitted diseases, or they need care not available from their private physician. There is an expectation that women will return to their family physicians once their special need for the hospital clinic is met, but in practice, the hospitals generally appear willing to continue to serve patients who prefer their care.

Medical care in hospital clinics is provided by physicians; as in the CLSCs, they are usually private practitioners paid by the session. In some hospitals, however, they are paid according to the service provided. The physicians tend to be young, a feature that may be attractive to teenagers. Parental involvement is not required for patients aged 14 and older, and some of the hospitals report that a large proportion of their patients are teenagers.

Nurses provide much of the counseling, which tends to be extensive, and the visit may take as long as one and one-half hours, not counting waiting time. Counselors mention contraceptive methods they see as appropriate for a particular patient but do not systematically describe all methods. Some hospitals share with the CLSCs the ethic that the patient has a right and responsibility to select and use an appropriate birth control method. This ethic extends to teenagers, and there is no recommendation to minors that they discuss contraception with their parents.

Other Facilities

Pharmacies are the principal source of contraceptive supplies, both prescription and nonprescription. Their role seems very similar to that of pharmacies in the United States. Nonprescription methods, including condoms but excluding the sponge, are almost always stocked, even in rural areas, and are frequently displayed where they can be easily found and examined by customers, although the displays tend to be located in the back, near the pharmacist. Condom packages increasingly feature erotic pictures and other attention-getting devices.

Pharmacists frequently provide information for women already using a method, especially those using the pill. For example, women often ask about the long-term safety of pill use. Some pharmacists make special efforts to see that new pill patients are adequately informed. In Quebec, pharmacists also perform pregnancy tests.

There are about six feminist women's health centers in Quebec that originally were wholly funded by the province but now must rely in part on fee-for-service insurance payments and other miscellaneous income. The centers organize workshops and discussion groups and provide reproductive health care. Because of financial limitations, the center visited for this study has not accepted new contraceptive patients in three years, but it provides contraceptive care (including the cervical cap) to continuing patients, performs abortions, provides childbirth training and has a health clinic for lesbians.

The Service de Régulation des Naissances is a private organization in Quebec that promotes periodic abstinence in conformity with Catholic doctrine. It has a number of locations in the province where instruction in the symptothermal method is provided.

Almost all university health centers provide prescription contraceptives to students. Colleges in Quebec, which are between high schools and universities in academic level, do not generally provide family planning services but will refer students to other sources. Condoms are sometimes available from vending machines on university campuses.

Four high schools in the Toronto area have family planning clinics, and some high schools in Quebec distribute condoms. These programs have remained in effect despite some public opposition.

A Toronto drama troupe tours grades 7–8 with messages on peer pressure and dating.

Toronto and Montreal each have a multiservice youth center that provides contraceptive care to teenagers. These centers attempt to reach students on local high school and college campuses with information and family planning services as well as other health and counseling services. The special attraction for teenagers appears to be the emphasis on counseling and confidentiality and the assurance of a sympathetic caregiver.

The Toronto youth facility is operated by Planned Parenthood and funded largely by fee-for-service insurance payments. The physicians are on salary and most of the counseling is done by volunteers. There is no charge to patients, who are given their choice of a male or a female physician. At the initial visit, a session with a counselor is scheduled first, during which time the patient chooses a method; she is next seen by a physician, who ordinarily performs a physical examination before providing a prescription. The patient may then be seen again by the counselor. The counseling sessions cover the general subject of sexuality as well as the specific issue of contraception. The entire visit may take two and one-half hours.

Pill patients are scheduled to return after one month, at which time they are counseled again and seen by a physician. Further visits are scheduled after two or six months, depending on the circumstances. There is no routine procedure for contacting patients who fail to return for follow-up appointments.

Information and Education

During the 1970s, the Canadian government's Family Planning Division was an important source of materials and information about birth control. Although the division launched no national education campaigns, it served as a resource for local and provincial family planning groups seeking to educate the public. During the 1980s, the federal government has gradually withdrawn from this activity.

The provincial governments provide support for the creation of new materials but do not themselves engage in public education campaigns. For example, both the Ontario Ministry of Health and the Quebec education ministry have produced sex education materials that are now used in some schools.

Campaigns to educate the public about family planning services occur from time to time at the initiative of local authorities. One example is "birth control week" in Toronto, which took place annually from the mid-1970s to 1985. In 1984, the activity included a condom giveaway, which attracted a great deal of attention but ultimately resulted in the campaign's discontinuation. The health department has wanted to place posters in the Toronto subway, but prohibitions against using the words "sex," "birth control" or "family planning" have made the attempts futile.

Planned Parenthood serves as a source of information in both Ontario and Quebec. The Toronto office handles 500 telephone calls a week and has installed automated equipment to provide recorded information over the phone. The Planned Parenthood youth clinic, The House, produces a newsletter four to six times a year that is distributed by the board of education to students.

Sex education in Ontario is largely under the control of local boards of education. The Catholic schools have education boards and policies that are completely separate from those of public schools. Overall, surveys suggest that the amount and type of sex education provided in Ontario varies widely from district to district, as it does in the United States. One difference from the United States is the involvement of school nurses in family planning education and referral. The nurses are under the jurisdiction of the health units rather than the boards of education, and it is usual practice for them to refer students for contraceptive services. In some schools, the nurses also perform pregnancy tests, with the permission of school administrators.

Until recently, Quebec had sex education programs in some districts but not others. After being delayed more than 10 years by opponents, a sex education curriculum has been adopted and implemented by the provincial department of education within the last two years. The program is still too new to have had any impact on birth control or fertility statistics. Prior to the adoption of the provincial sex education program, the CLSCs received special funds from the province to provide basic information regarding contraception and sex to students who were leaving school and not seeking higher education, because it was believed that these students were most likely to have problems with unintended fertility leading to poverty. The instruction was provided by nurses and social workers. At its height, the program reached a large proportion of students leaving school.

As for the advertising of contraceptive methods, advertising the brand names of prescription drugs to the general public is prohibited, as it is in the United States; therefore, pharmaceutical companies advertise their oral contraceptives only to professionals. Advertising of nonprescription methods is legal but not widespread. Small ads for foam have appeared recently in print, but there is little or no advertising of condoms. In Toronto, a birth control hotline is advertised in the classified section of one newspaper, in the classified telephone directory and in a handbook that is sent each year to all high school students.

As in the United States, there have been attempts in Canada to air spot television ads encouraging the use of birth control. In Manitoba, three such ads directed at teenagers have been created by the Committee on Unplanned Pregnancy and have been accepted as paid commercials by private television stations in the province. The ads show vignettes of teenagers talking about such subjects as their desire to finish school before having a baby and the importance of using birth control. The theme of the ads is "take control," and viewers are shown a toll-free number to call for information. Although there has been no public controversy about the ads, the publicly owned Canadian Broadcasting Corporation has refused to air them.

Most of the television programming watched by Canadians is produced in the United States and rarely contains references to contraception, nor do Canadian-produced English-language dramas mention contraception. As in the United States, occasional news items and documentaries contain information about the subject. More television programming in Quebec than elsewhere in Canada is locally produced and contains somewhat more information about birth control and sexuality than do programs in other provinces. During the 1970s, the rapidly increasing rate of sexual activity among teenagers was a frequent topic on Quebec television, both in discussion programs and in dramas. Although teenage sexual activity was frequently disapproved of on these programs, a dominant theme was the importance attached to teenagers' using contraceptives if they are sexually active. A popular serial drama about a family with four adolescents contained frequent references to contraception.

Toronto has a counterpart to the United States' Dr. Ruth Westheimer: Sue Johanson has a radio program called the "Sunday Night Sex Show" on the main rock music station that features phone-in questions about sex, and she hosts "Talking Sex with Sue" on a cable television channel.

As in the United States, the print media, particularly magazines, are frequent sources of information about methods of contraception. Major articles on the subject appear periodically and present both favorable and unfavorable information about methods. Newspaper columns devoted to problems related to health, personal relations (including the Ann Landers advice column) and youth sometimes discuss contraception.

The cultural context of the mass media differs markedly between Ontario and Quebec. Quebec is similar to Europe in having more open attitudes toward sexuality, and more explicit factual articles are published in magazines and newspapers than are seen in the mainstream press in the United States. More liberal attitudes may also be prevalent in Ontario, but the difference from the United States is small and not readily apparent in the media. Public opinion polls also provide evidence of a difference in attitude. For example, Gallup polls in 1985 found that only 18 percent of adults in Quebec believe it is wrong for a couple to have sexual relations before marriage, as compared with 30 percent in Ontario and 39 percent in the United States.[12]

An Assessment

Canadians believe their system of primary physician care meets the health care needs of the great majority of the people. No survey data are available specifically documenting women's satisfaction with family planning services or their preferences for providers. However, the pattern of utilization probably reflects women's preferences. Most family planning services are efficiently provided by general practitioners, who are easily accessible because they are plentiful and because their services are covered by provincial health insurance without charge to the patient. Women who prefer not to confide in their family physicians regarding sexual behavior have easy access to other general practitioners, since the insurance system reimburses physicians for the services they provide, and the majority of physicians are willing to accept new patients. Family planning clinics are available to serve women whose contraceptive needs are not adequately met by office-based physicians.

Although the overall need for family planning services appears to be substantially met, some shortcomings exist. First, since most women go to local physicians for birth control, the fact that many physicians offer only the pill limits the ability of women to learn about and obtain other methods, unless they make the effort to go to another source. Second, some clinics have waits to obtain appointments with a physician, and some require two visits before a medical method of contraception can be obtained. In addition, access to clinics is limited among rural populations living in remote areas of Canada.

The system relies in part on a high level of motivation among women to avoid unintended pregnancy. There is little advertising of services or active outreach. The predominant expectation is that women will use the most effective methods—the pill and sterilization—and will tolerate their side effects as a small price to pay to avoid pregnancy. The extensive counseling provided in the clinics to new contraceptive users may be viewed as an attempt to reinforce the motivation of women.

Overall, contraceptive practice in Canada is clearly superior to that in the United States, with the expected result that the rate of unintended pregnancy is lower. In a case study such as this, it is impossible to pinpoint the exact reasons for the difference between the countries. In addition to the differences in family planning service delivery systems, some of the more effective contraceptive practice may be attributable to differences in national character; for example, Canadians are generally more law-abiding and respectful of authority, qualities that may be associated with less risk-taking and more careful use of contraceptives. They seem to place a higher value than do Americans on the avoidance of unintended pregnancy, which leads them to select the most effective contraceptive methods and to show greater tolerance for the problems associated with their use. In addition, their more accepting attitudes toward sexuality, especially in Quebec, may promote more rational contraceptive behavior.

Nevertheless, there are four striking differences between the family planning service delivery systems of the United States and Canada that seem likely to contribute to more effective contraceptive use by Canadians. First, Canadian women are able to obtain prescriptions for oral contraceptives easily and without cost. Similarly, sterilization services are free and readily available. In the United States, there are significant economic and other barriers to the use of private physicians that may cause many women to seek an alternative source or possibly to forgo a medical method of contraception.

Second, the clinic systems in Ontario and Quebec devote extensive resources to the counseling of new contraceptive patients: Patients receive a minimum of one-half hour of counseling and as much as one and one-half hours. Although group teaching is utilized in some clinics, most educating is done individually, and all patients receive some individual counseling. In addition to focusing on how to use a particular method, the counseling may also cover such subjects as sexuality and sexual relationships. Regardless of the content, the extensiveness of the counseling conveys the message that it is very important to avoid unintended pregnancy. The importance of avoiding early childbearing is also emphasized where appropriate.

While the family planning clinic systems in Ontario and Quebec are no more extensive than are those in the United States, they are better able to focus their efforts on counseling women of all social classes because they don't need to provide basic services to large numbers of low-income women. Poor women who have no special need for a clinic have ready access to private physicians. The clinics are viewed as public resources for all who wish to use them rather than as facilities for the poor. A majority of young women in Ontario and probably also in Quebec utilize the clinics and receive the extensive counseling they provide. The clinics are also able to serve women whose needs are not met by private doctors but who, were they in the United States, might feel stigmatized by using a clinic.

Third, the family planning service system promotes use of the pill, the most effective reversible method. Although other methods are available, both clinics and private physicians encourage women to use oral contraceptives, which providers feel are safe and effective and are therefore the best method for most women under age 35.

Fourth, school nurses in almost all public schools and many Catholic schools refer students for contraceptive services. School nurses are under the authority of health units rather than boards of education; the policy of the former is to promote family planning, whereas the latter tend to view family planning for students as controversial and beyond their educational mission. The school nurses are required to offer sex education services to the schools (which do not always accept the offer, however), and they are known to students as a source of information about family planning.

In sum, the outstanding service-related differences between Canada and the United States are lower economic barriers to contraceptive services, more counseling for women when they become sexually active, more positive attitudes toward the pill, and more frequent referrals of high school students for birth control. It seems likely that these differences play a significant role in Canada's lower unintended pregnancy rate.

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The Delivery of Family Planning Services In the United States

By Jacqueline Darroch Forrest

"Because of the need to maneuver through the health care system to find a private physician who provides the service sought or to find a lower priced alternative, the task of obtaining contraceptives can be difficult in the United States."

Background

The U.S. health care system is based on private physicians: Three-quarters of the population rely on an office-based private physician or a private clinic as their regular source of medical care.[1] The majority of U.S. physicians are specialists; only 16 percent of physicians are general or family practitioners.[2] In addition, most are men (83 percent in 1983).[3] Patients have direct access to specialists as well as to general and family practitioners. In fact, rather than having one family physician, many Americans see a number of specialists for treatment of different conditions. Thus, it is not uncommon for a physician to be asked to treat a specific problem while knowing nothing more of the patient's medical history than what the patient has reported.

Access to private physicians varies widely. For one thing, private physicians are not evenly distributed across the United States. There are 242–247 doctors per 100,000 people in Maryland, Massachusetts and New York, compared with 106–107 per 100,000 in Idaho and Mississippi, for example.[4] Nonmetropolitan areas of the country (where one-quarter of the people live) are less well served than are metropolitan areas: The number of physicians per 100,000 in the former areas is only 60 percent of the number in the latter.[5]

Furthermore, a person's ability to consult a private physician varies by his or her ability to pay for care: In the absence of a national health insurance system, medical care is funded through a patchwork of systems. The large majority of Americans have private health insurance,[6] and those who either can afford the cost of private care or have health insurance that covers most or all of the amount generally visit office-based physicians for their health care.

Overall, in 1984, 74 percent of women of reproductive age in the United States were covered by private health insurance. For nine in 10 men and women, private insurance is linked to employment; the proportion of women covered is highest among couples in which both partners work and lowest among unemployed single women.[7] However, half of employees covered by group plans through their workplace must pay part or all of their health insurance costs.[8]

These costs can become high: People with work-related group plans pay an average of $490 annually for family coverage and $156 for individual coverage. The cost of insurance for those who do not have employment-related coverage averages $2,400 annually.[9] While almost all private policies cover surgery, hospital care and diagnosis and treatment of illness, more than 80 percent do not include office visits or services for preventive care, such as contraception.[10]

Some people, though, either are not covered through employment or cannot afford private insurance. In 1984, 10 percent of women of reproductive age had low incomes and were covered by Medicaid, while another 17 percent had no health insurance at all.[11] Those with no insurance coverage included one-quarter of women under age 25, one-third of those with incomes less than the poverty level and one-quarter of unmarried women.[12]

Although the Medicaid program was established in part to ensure that the poor have access to adequate health care, women often cannot get contraceptive services from a private physician if they are covered by Medicaid. In addition, because those eligible for Medicare are primarily welfare recipients, not all the poor are covered by this program, especially since almost one-half of states set public assistance cutoffs at less than half the federally defined poverty level. Because it is linked with welfare, Medicaid is often viewed as part of the welfare system rather than as a health program.

Only 56 percent of physicians who provide reversible contraception accept Medicaid reimbursement, and just 17 percent will reduce their fees for patients who cannot pay the full amount. The low level of participation in Medicaid among doctors can be traced in part to reimbursement levels: In 1983, the average Medicaid reimbursement for an initial contraceptive visit was 25 percent less than the average fee charged by a general or family practitioner; this difference was even greater for obstetrician-gynecologists (ob-gyns), whose Medicaid reimbursement was half their average fee. Not surprisingly, physicians whose fees were substantially higher than Medicaid reimbursement rates were significantly less likely to accept Medicaid patients.[13] In addition, the physician is responsible for completing the extensive paperwork needed to claim reimbursement, and the claim might still be denied, or payment might be delayed for a long period. And some states simply stop paying when they have exhausted the funds set aside for Medicaid.

U.S. women have access to a variety of contraceptive methods, including the pill, sterilization, the IUD and barrier methods such as the diaphragm, the condom, spermicides and the vaginal sponge. A new

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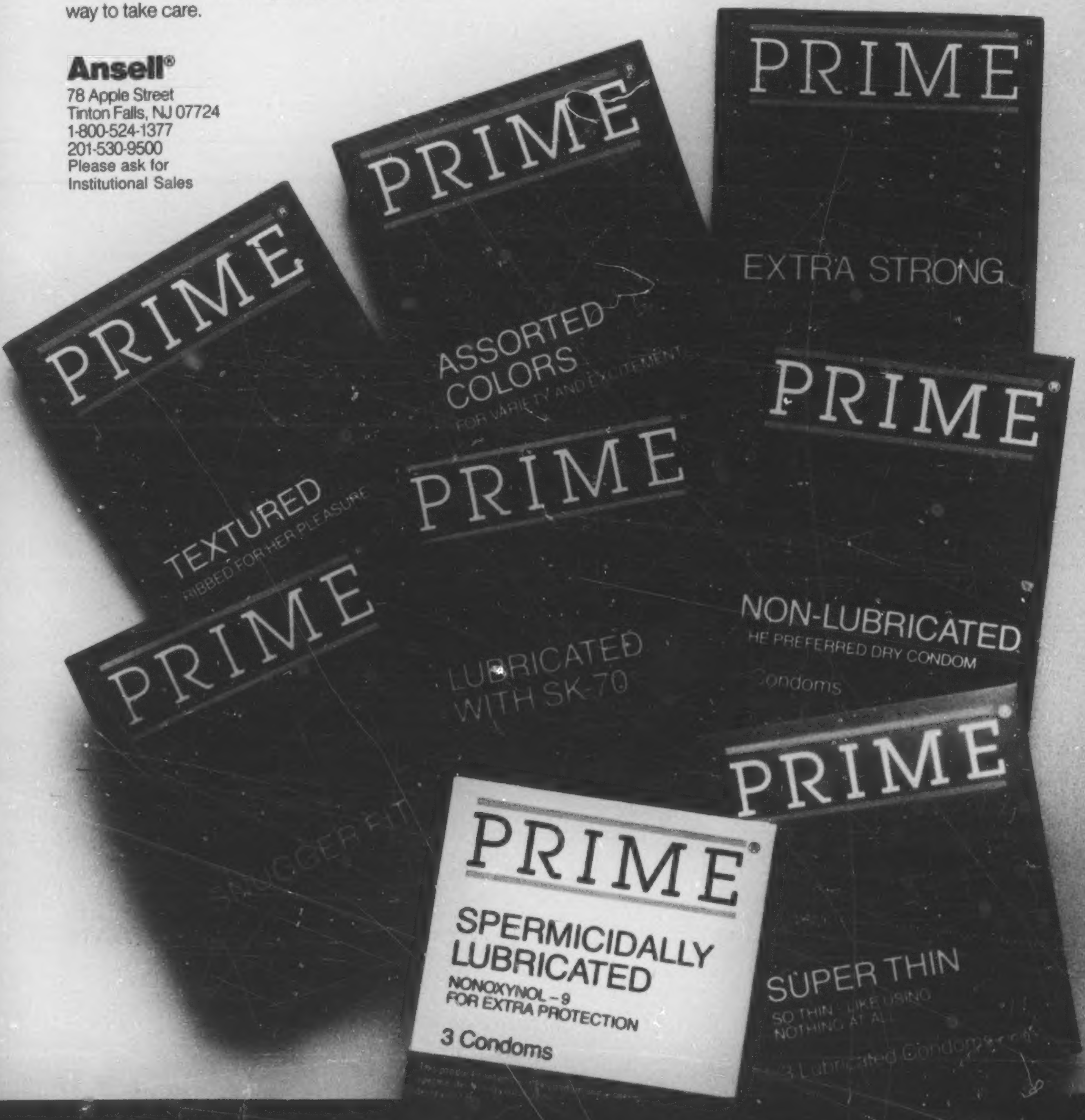

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copper IUD, the TCu 380A (or ParaGard), is expected to be available by mid-1988, and the cervical cap has recently been approved for general use by the Food and Drug Administration (FDA). Nonetheless, a wider range of methods is available in many other countries. For example, injectable methods such as Depo-Provera have never been approved by the FDA, and no organization has even attempted to gain approval of the morning-after pill, presumably because of concern over the threat of boycotts organized by antiabortion groups. Even if a method is approved by the FDA, it will be available to U.S. women only if a company decides to market it. Thus, over the period from the beginning of 1986 to mid-1988, during which copper-bearing IUDs were not being sold in the United States,[14] only a hormonal IUD (the Progestasert) with a one-year lifespan could be purchased.

Abortion services usually are provided outside the regular U.S. health care system. Many private physicians and hospitals do not provide abortions: In 1983, 10 years after *Roe* v. *Wade*, as few as three percent of office-based general and family practitioners and general surgeons and 42 percent of ob-gyns performed abortions.[15] As a result, special clinics have been established to provide abortions. At present, although only 31 percent of abortion providers are nonhospital clinics, these facilities provide 83 percent of all induced abortions.[16] Most abortion clinics provide contraceptives as part of their postabortion services. At one time, Medicaid paid for poor women's abortions; however, that has been forbidden since 1980. Some 14 states and the District of Columbia continue to use state Medicaid funds to subsidize abortion, but in the majority of states women cannot receive free abortions through Medicaid.[17]

Private Physicians and Family Planning

About 68,000 ob-gyns and general and family practitioners provide reversible contraceptives in the United States. Seven in 10 women who made a medical family planning visit between 1979 and 1982 went to one of these private physicians.[18] And two-thirds of those who visited a private physician for family planning had been to an ob-gyn.[19] Women with higher incomes are more likely than those with lower incomes to see a private physician for family planning: Seventy-seven percent of women with family incomes over 150 percent of poverty who made a family planning visit went to a private physician, compared with 53 percent of lower income women. Teenagers are less likely to visit a private physician for family planning (48 percent) than are women aged 29 or older (73 percent).[20] Family planning represents only a small part of physicians' overall practice responsibilities; general and family practitioners who provide contraceptive care report that family planning patients account for only six percent of their total caseload, whereas ob-gyns estimate that 31 percent of their patients come for contraceptive services.[21] Private physicians' office hours are generally limited to weekdays, although one study found that 32 percent see patients on some weekday evenings, and 13 percent have office hours on Saturdays.[22]

The majority of patients who rely on private physicians for family planning services are not poor; 80 percent have annual incomes above 150 percent of the poverty level. White women are overrepresented among physicians' family planning patients, as are older women.[23] Women generally say that they prefer to visit private physicians for family planning care, in part because they see physicians as providing more personal and higher quality care.[24]

It is relatively simple for a woman to find a physician who will prescribe a reversible contraceptive, especially the pill: Fully 84 percent of general and family practitioners and all ob-gyns offer reversible contraceptives, and essentially all of those who provide family planning services prescribe the pill.[25] Physicians generally view the pill as the most effective reversible method. Reliance on triphasic formulations has climbed rapidly; these have recently become the first choice of a majority of physicians.[26]

Most physicians will also fit a woman for a diaphragm and write a prescription for it. Those who do not fit diaphragms—perhaps because they see few patients who request this method—will instead refer the woman to another doctor, usually an ob-gyn. Not all physicians, especially those who are not ob-gyns, know how to or will insert IUDs. Thus, many women who might wish to use the IUD must also be referred by their private physician to some other provider.

Finding a physician to provide sterilization services can be even more difficult: Very few general practitioners perform such surgery. Thus, while almost all tubal sterilizations and vasectomies are performed by private physicians,[27] only one general or family practitioner in four perform vasectomies and just one in five perform tubal sterilizations. However, 94 percent of ob-gyns provide tubal ligations, and they perform about 80 percent of all procedures.[28] Because vasectomies are less difficult to perform than tubal sterilizations, two-thirds are done in physicians' offices.[29] As a result, a wider spectrum of physicians—26 percent of general and family practitioners, 50 percent of general surgeons and 89 percent of urologists—offer vasectomies.[30]

Private physicians generally consider sterilization to be the most appropriate method for couples who want no more children, especially when the woman cannot use the pill. However the vast majority of private doctors who perform sterilizations set one or more conditions. The most common is spousal consent, required by half of the doctors who perform tubal ligations and by eight in 10 of those who perform vasectomies. Other conditions include a minimum age or number of children, a waiting period or a stipulation that the man or woman be an established patient. Four in 10 physicians who perform sterilizations do not accept Medicaid for female sterilization, and half do not accept it for vasectomy.[31]

One in four physicians will not provide contraceptives to minors without parental consent; this proportion is three in 10 among general and family practitioners and two in 10 among ob-gyns.[32] Thus, in a community with few physicians (especially in nonmetropolitan areas, where there are few ob-gyns), a minor's chance of finding a doctor who will provide confidential services can be small.

The medical policies and procedures followed by physicians who provide contraceptives are influenced by professional standards, such as those developed by the American College of Obstetricians and Gynecologists (ACOG), by their own preferences and patient demands and by concern over potential malpractice suits. Pelvic examinations (usually including a Pap smear) are normally required before a medical method is prescribed. The ACOG recommends that physicians give pill users the formulation containing the lowest dose of estrogen and progestin consistent with the prevention of pregnancy and with continued use.[33] Between 1982 and 1986, the proportion of pill prescriptions dispensed through retail pharmacies and office-based physicians for formulations with 35 mcg of estrogen or less rose from 44 percent to 71 percent.[34] However, higher dose pills are still used by a sizable number of women, especially older women who began pill use some time ago.[35]

In 1985, an initial contraceptive visit to a general or family practitioner cost $39, while a first visit to an ob-gyn cost $66.[36] (The charge for a continuing patient's revisit is generally 20 percent less for general and family practitioners and 40 percent less for ob-gyns.)[37] Charges differ across the country, and even within communities, but generally are higher in urban and suburban areas than in rural areas and in the western states.[38]

Contraceptive supplies can also be costly. With one cycle of pills priced at about $12, the annual cost of pill use is about $156 per year; the cost of using a diaphragm is slightly less. The one IUD available in 1986 and 1987, the Progestasert (which must be reinserted annually), costs physicians $84; the amount that patients are charged for insertion of the device is not known, but is probably higher. In the short term, surgical sterilization costs much more than reversible methods. In 1982, physician and hospital charges for an inpatient or outpatient tubal ligation were around $1,300, and the fee for an office vasectomy averaged $240.[39] However, if this investment is amortized over a number of years, the price of sterilization is at least comparable to other methods.

Physicians do not usually undertake outreach to potential patients; women must generally seek them out. Although physicians are now allowed to place paid advertisements for their services in newspapers and magazines, few do so. Thus, the only way most potential patients have of looking for a doctor is through the telephone directory; however, most of the restrictions that physicians place on the types of patients they will see are not included in such listings. To find out a doctor's policies and fees, a patient must either consult other patients or phone or visit the doctor's office.

Since 16 percent of general or family practitioners do not offer reversible contraceptives, the willingness of physicians to refer women to another provider is important. Three-quarters of doctors who do not offer contraceptives say that they have referred family planning patients elsewhere or have never been asked for a referral. All who make referrals say that they refer patients to another physician, and half say that they would also refer a woman to a clinic or hospital.[40] The vast majority of physicians who do not perform sterilizations also are willing to refer patients to private doctors who will perform the procedure.[41]

A recent study of physicians' provision of health care showed that doctors spend an average of 16 minutes with each patient, but most of that time is taken up by the examination; only slightly more than one minute is spent giving the patient information.[42] Long waits to see a doctor are common: A total of 45–60 minutes may be necessary in order to make a 15-minute physician visit. Physicians who offer family planning services generally perform whatever counseling is given; this usually includes providing information on how to use a particular method and on its risks and side effects.

The waiting room of a family planning clinic in the United States.

Family planning visits are often brief, and physicians may set aside little time for counseling beyond a brief discussion of potential problems. Part of the reason may be that U.S. physicians receive little training in counseling during their medical education. In addition, doctors apparently believe that they spend more time giving information to their patients than they really do. One study found that although doctors spent an average of 1.3 minutes giving information to a patient, the physicians themselves thought that they spent an average of 12 minutes doing so.[43]

The ACOG and the pharmaceutical companies produce informational materials for physicians to give to their pill patients, usually containing a description of how to use the method, what to do if pills are missed, what side effects might occur and when to call the doctor about side effects. In addition, each pill package comes with an extremely detailed insert describing contraindications to pill use; expected accidental pregnancy rates; the risk of circulatory disorders, tumors and gallbladder disease; potential dangers to a developing fetus; and other side effects. The insert also lists signs of serious adverse effects that should signal a woman to call her physician and includes information on drugs that might reduce pill effectiveness to the extent that users should rely on an additional method for contraceptive protection. Although the package insert explains when to take the pill, it does not discuss what to do if one or more pills are missed.

The manufacturer of the Progestasert IUD requires physicians to obtain documented informed consent before they insert the device. The consent form prepared by the company is clear and specific about risk factors that should rule out a woman's using the device and about its possible side effects. The woman is asked not only to sign it but also to initial each section to verify that she has read and understood it. The company marketing the ParaGard copper IUD has announced plans to follow a similar procedure.

Such approaches to the provision of medical methods of contraception have undoubtedly raised women's awareness about potential side effects; however, they may also add to a woman's fear about using a medical method of birth control because of the emphasis on what could go wrong. In addition, the need to read and sign such a lengthy document increases the time (and cost) of providing contraceptives.

Family Planning Clinics

Publicly funded clinics, which mainly provide services to women who cannot afford private physicians, offer free services or charge a fee based on the patient's income. Fifteen percent of all U.S. citizens rely on clinics, hospitals or other publicly funded facilities for their regular medical care, including 20 percent of those with no health insurance and 28 percent of those covered by Medicare or Medicaid.[44]

The first family planning clinics were developed in a few areas of the country in the 1920s by private organizations such as the Planned Parenthood Federation of America (PPFA) to provide women with contraceptive information and diaphragms at a time when physicians would not do so. As private physicians began to offer contraceptive advice and services, the private clinics came to serve poor women who could not obtain contraceptive services from public health clinics. In the late 1960s, the federal government began to fund family planning services in both public and private clinics, the initial goal having been to serve poor women who could not afford to see private physicians. Eventually, the mandate was broadened to include others, such as adolescents, who also needed an alternative to private physician care. In some areas, other special groups—non–English-speaking immigrants, native Americans and rural residents—are targeted as well.

Almost all family planning clinic patients are women, and they are largely poor: Eighty-three percent have incomes below 150 percent of the poverty line, and 13 percent receive welfare. Twenty-six percent of all clinic patients are black, and 11 percent are Hispanic. Thirty-two percent of all patients are under 20, and 14 percent are under 18. Clinics are located in every state, although metropolitan areas are better served than nonmetropolitan areas; about one in eight women living in a nonmetropolitan area have no family planning clinic in their county. In general, family planning clinics tend to be located in lower income areas.[45]

There are some 5,100 family planning clinics operated by 2,500 different agencies throughout the United States. The majority of family planning clinics (57 percent) are run by public health departments. There are 1,400 health departments that operate family planning clinics, and these have an average of two sites each; about four in 10 clinic patients are served in such clinics. The next most common provider is Planned Parenthood, a private, nonprofit organization made up of approximately 180 agencies operating an average of four clinic sites each. In addition, almost 300 hospitals offer family planning clinic services; although most operate at only one site, they serve an average of more than 1,400 patients per site. About 600 other organizations—neighborhood health centers, women's health centers and community action groups—also have family planning programs. These are responsible for 21 percent of all family planning clinic patients. Health departments are more likely to provide family planning services in nonmetropolitan areas than in cities, while Planned Parenthood and hospital clinics are more common in metropolitan areas.[46]

Family planning organizations almost universally rely on many different funding sources.[47] The largest single source of funding is the Title X grant program administered by the U.S. Department of Health and Human Services, which provides about one-third of agencies' income. About eight in 10 family planning agencies receive funding from Title X. Recipients must follow fairly detailed guidelines, including a requirement that low-income persons and teenagers be given priority in service provision.

Ninety percent of all agencies are reimbursed by Medicaid for some services. About two-thirds of the states use money from their Maternal and Child Health block grant to fund family planning services; these funds are utilized by three in 10 agencies. Half of the states also use funds from the Social Services block grant for family planning, and about half of agencies receive funds from this source.[48] In addition, half of all agencies receive income from state or local governments, often as general funding rather than as reimbursement for services actually provided. Other agency income is provided by fees: In 1983, some or all patients at 92 percent of agencies were charged for services. Private contributions from the general public and from private foundations are also made to about four in 10 family planning agencies, including almost all Planned Parenthood agencies.

Family planning clinics usually do not provide a full range of reproductive health services; they are not, and are not intended to be, places where women receive complete reproductive health care. Clinicians generally prescribe oral contraceptives and diaphragms, and the clinics often provide the supplies for these methods. They also provide information on nonprescription contraceptives and, usually, supplies; before 1986, the year the copper IUD disappeared from the U.S. market, many had inserted IUDs as well.

Most clinic patients request the pill; two-thirds received pill prescriptions in 1983.[49] Clinicians working in family planning clinics generally prefer to prescribe triphasic pills.[50] Almost half of clinics set an upper age limit for pill use at 35 for women with no contraindications, but some will provide the pill to such women up to age 40.

Fewer than one-quarter of clinics provide either female or male sterilization services; instead, most refer patients to other providers who do offer that service. Referrals are also sometimes made for methods such as natural family planning. Clinics receiving Title X funds currently are required to offer pregnancy diagnosis and counseling and to refer pregnant women, on request, to sources of prenatal care and delivery, infant care, foster care, adoption or abortion. More than 90 percent of all family planning agencies provide pregnancy testing and counseling, as well as testing for sexually transmitted diseases. About three-quarters offer treatment for sexually transmitted diseases, and those that do not generally refer women to other organizations. Six in 10 clinics provide infertility counseling, but only two in 10 offer infertility treatment. Between one-quarter and one-half offer prenatal care services, genetic counseling and programs for adolescent mothers.[51] Besides offering contraception-related medical examinations free or at low cost, almost all clinics provide supplies free or at less-than-market price. (Although most patients receive free supplies, some are charged $6–$7 for a cycle of pills.)

Clinics with Title X funding must serve at no charge any patient with a family income under 100 percent of poverty; in other clinics, the median fee for such a woman (for a first visit and a three-month supply of pills) in 1983–1984 was $14.[52] The median fee for a woman with an income at 125 percent of poverty was $15 in a Title X clinic and $28 if the clinic relied on other funds. Charges for women at 250 percent of poverty were similar in Title X and non–Title X clinics, at about $50. In 1983, two-thirds of all clinic patients received free services, including 79 percent of adolescent patients and 61 percent of older women.

About one in four clinics will not depend on the patient's own statement of her income as a qualification for free care or reduced fees, but require some form of verification, such as a payroll stub, an income tax return, a Medicaid card or a rent receipt. Planned Parenthood clinics are the most likely to rely on the patient's own report, and hospitals are the most likely to ask for proof of income. Teenagers are served free or are charged less than are older, low-income women in about half of Title X–funded clinics and in about one-third of those without Title X funding.

Title X guidelines require all contraceptive patients to give a full medical history; receive a physical exam, including a pelvic exam, a blood pressure check and a Pap smear; and receive counseling.[53] Patients choosing nonprescription methods may defer the physical exam, but they are encouraged to have an exam at a return visit.

Before a patient can receive a method or undergo a procedure, she must sign a voluntary consent form. The form includes a statement that the patient has been told and understands the risks and benefits of the method she has chosen and of alternative methods, and has been informed about the safety, effectiveness, potential side effects, complications and danger signs of the method she is receiving. Although such forms are supposed to be in language familiar to the patient, many are long, difficult to read and frightening.

Not every clinic is open every day; on average, clinic sites are open for about 30 hours each week.[54] One four-city study found that half are open evenings, and fewer than one-third have Saturday hours. Fewer than one-third of all clinics will see a patient for routine services without an appointment, but two-thirds will see a patient with a problem even if she does not have an appointment. The length of time a patient must wait between making an appointment and coming to the clinic averages between one and two weeks.[55]

All clinics are supervised by physicians, but because of the expense of employing full- or part-time doctors, many clinics rely on nurse practitioners to provide family planning services under standing orders from the physician. The four-city study mentioned above found that four in 10 clinics relied on nurse practitioners for clinical care.[56] Depending on the management model used by the clinic, a patient may see as few as two staff members during her visit (usually a nurse practitioner and a receptionist, a counselor or an educator) or as many as five or more.[57] Except for physicians, staff members are almost always female.

Clients spend an average of an hour or more at the clinic in the course of one family planning visit, with initial visits usually taking longer than revisits.[58] A teenager may spend an hour and a half making an initial family planning visit.[59] More than half of this time is spent waiting after arrival or waiting to see a staff person.[60]

Most clinics have delegated to certain personnel the task of counseling patients about the choice of available methods; their risks, benefits and effectiveness; and their proper use. The emphasis of education and counseling in family planning clinics is on helping the patient make an informed decision and learn how to use the method effectively; it is not considered the counselor's role to suggest a specific method. This point is emphasized in the federal guidelines for Title X recipients.[61]

The amount of time spent in actual counseling depends not just on the woman's needs but also on the structure of the clinic. At one time, clinics routinely held group sessions to inform clients about reproductive physiology and the available methods, and then counseled them individually about their questions and needs. Now, however, many clinics simply offer individual counseling to all clients. In clinics with group sessions, education and counseling can take as long as 45 minutes, whereas individual counseling usually takes substantially less time.[62] Likewise, the amount of time a clinician spends with a patient varies; at some facilities, clinicians conduct education and counseling, while at others, the patient sees a clinician only for the physical examination. Clinic directors in four cities reported that clinicians spent slightly less than 20 minutes with each patient.[63]

As part of their overall education effort, clinics usually make a great deal of printed information available to the patient, often brochures prepared by the operating agency, the federal government or a pharmaceutical company. This material generally covers such topics as specific or alternate methods of contraception, clinic or agency services and hours and other matters related to reproductive health, such as vaginal infections, sexually transmitted diseases and prenatal care. Clinics with many non–English-speaking clients usually provide brochures in other languages. As part of their education efforts, four out of five agencies provide community education, and about half do special outreach for teenagers.[64]

Among women who are able to choose their providers, private physicians are the usual source of care. Low-income women who visit clinics do so primarily because they cannot afford private physicians' fees or because private physicians will not accept Medicaid reimbursement, whereas clinics will. Adolescents who go to family planning clinics do so because of the free or low-cost services and because they are afraid a private physician may tell their parents about the visit.[65] Clinics are much less likely than private physicians to require parental consent before serving teenagers: In 1979–1980, 80 percent of agencies would serve teenagers 15 years of age or younger without parental consent, and 90 percent would serve 16–17-year-olds.[66] Some women, often teenagers who have never been to a physician on their own, go to clinics because they do not know a private physician who would serve them.

Clinic services are generally considered complementary to the services provided by private physicians rather than in competition with them. Many clinics employ private physicians as part-time staff in their clinics. And because family planning clinic services are usually limited to fairly routine primary care, patients with special problems are referred to other providers, often to a private physician.

Pharmacies

Whether they are using oral contraceptives, the diaphragm or nonprescription contraceptives such as condoms, foam or the sponge, the majority of women who visit a private physician to obtain such methods must also visit a store in order to obtain supplies. In most cases, they go to a pharmacy, although some supermarkets stock spermicides among feminine hygiene supplies, and, in response to the publicity about AIDS, more facilities besides pharmacies are selling condoms.

There are more than 58,000 drugstores across the country. While two-thirds of the 150,000 pharmacists are men, 59 percent of current pharmacy students are women.[67] Pharmacists do not receive any special training in handling questions about contraceptives. Sometimes the drugstore has informational material from pharmaceutical companies available for customers.

American pharmacies tend to be quite large and offer a wide variety of products, from cosmetics to books to picnic supplies. A pharmacy is therefore a place that a consumer of any age is likely to visit, so men and women may obtain contraceptives there relatively inconspicuously. At one time, pharmacists and other drugstore employees kept condoms and spermicides out of sight, usually behind the counter, and a customer had to ask specifically for them. However, most drugstores now display them in plain view, with spermicides usually shelved in the feminine hygiene section and condoms placed on a rack near the check-out area. Condoms still often must be asked for, in part because there is no comparable male hygiene section and in part, perhaps, to discourage shoplifting. The price of condoms varies, but they generally cost at least $2.50–$3.00 for a package of 12. Contraceptive sponges, on the other hand, generally cost more than $1.00 each.

Method Preferences

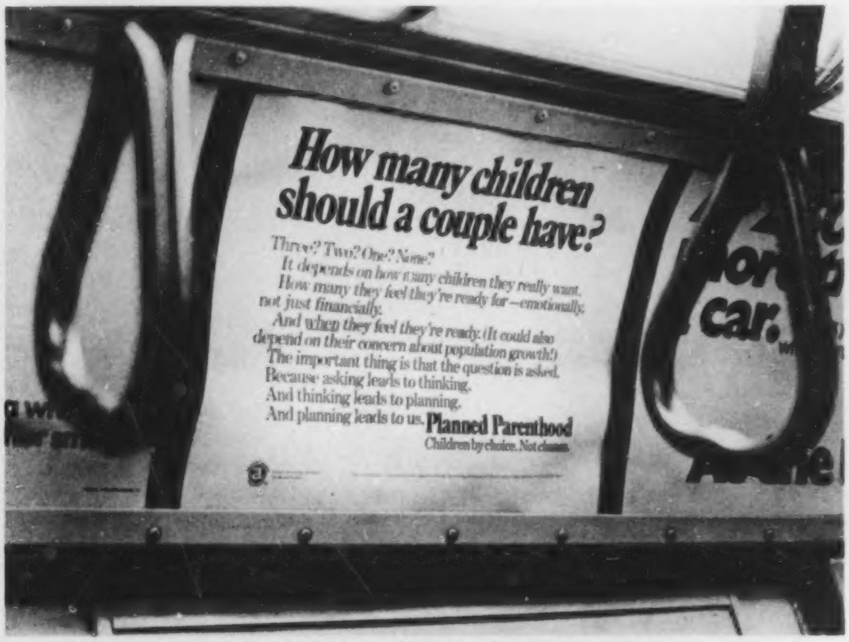
One national study conducted in 1982 showed that 62–65 percent of women of reproductive age held favorable opinions about sterilization and the pill, some 30–40 percent had positive attitudes about the condom and the diaphragm, and relatively few had positive attitudes about the IUD, foam, periodic abstinence or withdrawal.[68] However, despite the fact that women approved of sterilization more than any other method, other data suggest that as many as one-quarter of couples who choose sterilization—the most common method in the United States today—may later regret it.[69] And even though oral contraceptives were looked upon more favorably than any other reversible method, fears about the pill's health risks are pervasive in the United States. Polls indicate that three-quarters of adult women and two-thirds of men think that pill use involves "substantial risks," primarily from cancer or blood clots. There are no important differences in these proportions by educational level.[70]

Fears about oral contraceptives appear to reflect both broad concerns about health and medications and specific worries about contraceptives. In one recent survey, single women in their 20s rated the pill more favorably than any other method, but it received its most positive ratings in effectiveness, lack of interference and convenience, while receiving the second lowest score on safety, after the IUD.[71] As many as one out of five current users rely on the less-effective methods (barrier methods, rhythm, withdrawal and others),[72] a small but substantial minority (12 percent) of women who are fecund, sexually active, not pregnant and neither postpartum nor seeking pregnancy are not using a method.[73] In fact, half of all unintended pregnancies occur among these women.[74] Among the most common reasons for nonuse of contraceptives or use of less effective methods is concern over side effects.[75]

Information and the Media

The U.S. mass media reflect, as well as form, the rather ambivalent climate of opinion in the United States about sex. There are frequent allusions to sexual intercourse in entertainment programming, and sexual innuendo is often used to attract attention in advertisements. Since the late 1970s, the amount of explicit sexual content in television programming has increased,[76] and two-thirds of adults think television encourages sexual activity and exaggerates the importance of sex.[77]

Contraception, on the other hand, is almost never mentioned in entertainment programming or advertisements, in part because media representatives believe that such references will offend their audiences. In addition, prescription drugs generally cannot be advertised to the public, and television, radio, newspapers and magazines have had long-standing policies against advertising contraceptives. In the past few years, spurred by the submission of advertisements for the contraceptive sponge, some magazines have run ads for spermicides, and condom ads have begun to appear as well. However, attempts by pharmaceutical companies and other private organizations to place advertisements for contraceptives on television and radio have been strongly resisted. The ACOG tried to place television ads aimed at adolescents that focused on the importance of preventing unintended pregnancy in order to achieve one's goals in life. After much discussion, the spots were accepted by some stations only after the word "contraceptive" was removed.


How many children should a couple have?
Three? Two? One? None?
It depends on how many children they really want.
How many they feel they're ready for—emotionally, not just financially.
And when they feel they're ready. (It could also depend on their concern about population growth!)
The important thing is that the question is asked.
Because asking leads to thinking.
And thinking leads to planning.
And planning leads to us. Planned Parenthood
Children by choice. Not chance.
car.

Providers sometimes use ads placed in subways or buses to publicize their services.

Advertisements for family planning services are limited to those placed and paid for by service providers. They are not widespread, and those that do appear are usually rather small ads in local newspapers. Some providers use posters and placards in public transportation to promote their services; however, local providers may not be able to afford such ads or may believe that they do not represent a good use of scarce funds. Some family planning agencies put low priority on expanding their caseloads because they are already at capacity and do not have the staff or funds available to serve more patients.[78] Private physicians and organizations that provide services—especially hospitals and health departments—do not normally advertise any of their services.

Although contraception is seldom mentioned in the entertainment programming of television or radio, the topic is covered in broadcast news and feature stories. Such stories may report information about contraceptive use, safety or effectiveness or about research into development of new contraceptive methods; they sometimes also touch on contraception within the broader context of stories on adolescent pregnancy or AIDS.

Coverage of the AIDS issue has generally included identification of sexual intercourse as a risk factor and discussion of either avoiding intercourse with someone who might have the virus or using condoms as a prophylactic. As a result, there has recently been much more open discussion about condoms, although almost all of it has focused on disease prevention, not contraception. There has been some disagreement within the federal government over the appropriate government policy concerning AIDS prevention, with some arguing that people should be told that condom use can reduce the risk of infection and transmission and others arguing that the only appropriate governmental response is to encourage abstinence and discourage intravenous drug use.

The federal and state governments do little to inform and educate the public about family planning. The activities that are undertaken are generally focused on the usual target groups—low-income women and teenagers. As for other efforts to reach the latter group, some states and many localities have encouraged or mandated sex education classes in the public schools; one study has shown that the majority of young people take a sex education course before leaving high school.[79] However, most states have left the decision whether to offer sex education, as well as what topics to include and how to teach the subject, to local school districts, many of which remain uneasy about including information on contraception in such classes. Moral and personal values are included as often as, or more often than, information about contraceptive methods or their sources.[80] The most commonly cited goals of sex education are to promote rational, informed decisionmaking about sexuality and to present facts about sexual intercourse.

Conclusions

Family planning services in the United States are delivered in a way similar to other health care. The normal expectation is that a woman who wants a prescription method or a man or woman seeking sterilization will go to a private physician for services. Since the health care system is based primarily on specialists, it is likely that this physician will not be the doctor whom the patient would normally see for other types of health care. Ob-gyns and general and family practitioners, who provide most of the reproductive health care, do not offer all services, but they usually will refer their patients to a physician who offers what the patient needs. On the other hand, the woman who cannot afford a private physician's fee and the younger teenager who fears that the doctor will tell her parents about her visit rely primarily on clinics for medical contraceptive services.

Because of the need to maneuver through the health care system to find a private physician who provides the service sought or to find a lower priced alternative, the task of obtaining contraceptives can be difficult in the United States. It appears that little effort is devoted to informing women about the sources and costs of services. Those who are the main targets of publicly subsidized family planning services—low-income women—are still not adequately assisted to find and obtain services. Rates of nonuse of contraception are 80 percent higher among poor women than they are among women with higher incomes.[81] In addition, nonuse among adolescents exposed to the risk of unintended pregnancy, who represent another important target group for subsidized services, is more than twice the level of women in their early 20s.

However, differentials in income and age do not have an important impact on the type of method used: There are few differences in choice of reversible methods by whether women go to a clinic or a private physician; any income-related differences in methods used appear to be more closely related to women's age, marital status and parity than to their source of service.[82] There also do not seem to be significant differences in the effectiveness of method use according to source of contraceptive care.[83]

Difficulties in obtaining services appear to be only one problem hindering contraceptive practice in the United States, since the rate of nonuse is fairly high even among those who presumably can afford private physicians. Another basic factor underlying poor contraceptive use may be the fear of side effects or health problems from the more effective contraceptives. Many women at risk of pregnancy who do not use a contraceptive method cite concern over side effects as the main reason.[84] Another factor is that American women commonly underestimate the effectiveness of modern contraception, believing that even if they were to use contraceptives, their chance of becoming pregnant would be fairly high.

In addition, there is no consensus in the United States about sexuality. Exploitation of sex in some of the entertainment media and in advertising lies at the opposite pole from the argument made by some federal officials that public information about AIDS should not include any reference to condoms. Americans are often confused and ambivalent about their sexual behavior; apparently many people, especially the young, have intercourse but do not prepare in advance by obtaining contraception because they feel guilty about having sex.

Thus, although most of those at risk of unintended pregnancy use contraceptives, a sizable minority, especially lower income women and younger women, do not. They may be worried about method safety and effectiveness, and they may have a hard time finding a provider who will serve them. Because they were established primarily to serve poor women, clinics often carry the stigma of being "second-rate" services for the poor. Clinic staff are often dedicated people working in poorly funded organizations with patients who bring with them the myriad problems that accompany poverty in this country. Rather than simply delivering medical services, clinics are often asked to counteract the very strong societal influences of ambivalence regarding sexuality and fear and mistrust of contraceptive methods.

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Special Report

Courts Sink New Title X Regulations

By Michael Klitsch

On February 2, 1988, the Department of Health and Human Services (DHHS) issued the final version of new regulations governing how Title X funds could be disbursed to family planning projects. The new rules, scheduled to go into effect 30–60 days afterward, represented a sweeping attempt to limit recipients' even peripheral contact with abortion, and were immediately challenged in three federal courts. In mid-February, two federal district court judges temporarily blocked enforcement of the regulations, and early in March, another judge permanently enjoined the DHHS from imposing the new regulations. This last decision concluded that, among other problems, the regulations "constitute an unconstitutional penalty for the exercise of First Amendment rights . . . [and violate] the equal protection component of the Fifth Amendment."[1]

Background

When Title X of the Public Health Service Act was enacted in 1970, one of its provisions (section 1008) stated: "None of the funds appropriated under this title shall be used in programs where abortion is a method of family planning." Although no detailed implementing language was ever formulated, the DHHS, family planning providers and Congress all interpreted the provision during the 1970s to mean that Title X funds could not be used to provide abortions. Originally, the regulations for Title X permitted recipients to offer nondirective counseling to pregnant patients regarding their options (including abortion as one option), as well as appropriate referrals. In 1981, these regulations were modified so that recipients were required to offer options counseling and referrals to patients.

When the Reagan administration took office in 1981 and announced that it would pursue a conservative social agenda, among its top priorities were the revocation of *Roe v. Wade* and the addition to Title X of parental consent or notification requirements for teenagers. In addition, the General Accounting Office (GAO) ordered an audit of Title X recipients in 1982 because of charges from antiabortion and anti–family planning groups outside the government that these agencies were using government funds to encourage abortion. However, the audit revealed no such violations, and in 1985, DHHS Secretary Margaret Heckler testified before Congress that there was no evidence of such problems.

It has only been in the last several years, after most of their other efforts had been beaten back, that members of the Reagan administration have tried to change Title X regulations to make any providers involved with abortion counseling or referral ineligible to receive Title X funds. This plan has often been described as the erection of a "wall of separation" between family planning and abortion. After legislators made several unsuccessful attempts to add such restrictions to Title X authorizations in Congress, President Reagan announced in July 1987 that he had formally instructed the DHHS to institute changes in the administration of the Title X program.

The proposed new Title X regulations were first published in the *Federal Register* on September 1, 1987, after which came the usual 60-day comment period. More than 75,000 opponents and proponents of the revisions wrote to the DHHS during this time, a bare majority of them favoring the new regulations. Many of those who wrote in opposition to the regulations were professional organizations such as the American Public Health Association (APHA), the American Medical Association and the American College of Obstetricians and Gynecologists, as well as 34 senators, 114 U.S. representatives and 35 state health departments; most of those favoring the regulations were individual churches and citizens. A slightly revised set of regulations was announced by the DHHS in late January;[2] they became final on February 2 and were scheduled to go into effect 30–60 days later.

The Regulations

The new regulations contained a number of controversial elements, among them being a provision prohibiting Title X family planning providers from counseling patients about abortion or referring them for any abortion-related services and another requiring recipients to have physically separate facilities from those of any abortion provider. Equally important were provisions forbidding Title X recipients from using non–Title X funds to lobby for abortion rights, develop materials advocating abortion or take legal action seeking to allow abortion to be used as a "method of family planning."[3]

An especially important addition to the revised regulations issued in February involved the definition of who would be affected. In an attempt to address the issue of recipients' use of private funds for abortion-related activities, the DHHS stipulated that even nonfederal funds be subject to the regulations, by requiring that "all funds allocated to the Title X program or project—whether they are direct Title X grant funds, program- or grant-related income, or matching funds—be spent in compliance with section 1008 and that the program be separate and distinct from prohibited abortion activities."

One section of the proposed regulations had stated that a program that "provides counseling . . . for abortion services as a method of family planning is not eligible to receive funds." Opponents argued that this section violated the First Amendment rights of family planning providers, that it would force them to engage in unethical and

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unprofessional behavior, that they would be unable to receive true informed consent from Title X patients, that as a result Title X recipients would be under greater threat of legal action and thus be forced to relinquish their Title X funds and that the new regulations unnecessarily burdened women's constitutionally protected right to an abortion. The DHHS disputed most of these points, agreeing only that providers could not be prevented from giving patients contraceptives with patient package inserts that mentioned abortion. With regard to the possibility that some providers would have to give up their Title X grants, the DHHS document accompanying the regulations noted that "the Department recognizes that the regulations below may result in some realignment of Title X providers."

The proposed regulations also had stipulated that a program that refers patients for abortion services would be ineligible for Title X funding and had prohibited providers from using a referral list for other medical services as "an indirect means to encourage or promote abortion . . . [by] consciously weighting the list of referrals in favor of health care providers and/or facilities which provide abortions." This prohibition was criticized as violating medical ethics, and the second part was especially criticized by rural providers, who feared that they might not be able to list the only local hospital for emergency referrals if it provides abortions. The DHHS amended this section of the regulations to note that Title X recipients are obliged to provide emergency referrals, as in the case of ectopic pregnancy.

The preliminary regulations had mandated that a Title X project be "entirely separate and distinct, financially and physically, from any abortion-related activities," and had stipulated that recipients set up separate accounting and medical records systems and keep the physical facilities of Title X–funded activities separate from abortion-related activities. As a result, common waiting, consultation, examination or treatment areas, shared telephone numbers or receptionists and common names and common entrances and exits would have been forbidden. Many providers criticized this provision, noting that state law or court orders required them to provide services through a hospital or clinic in which abortion is mentioned or actually performed. The provision would also have forced providers to spend a great deal of money in expensive renovations to their facilities. In response to these criticisms, the DHHS revised the regulations to say that recipients would be evaluated on a case-by-case basis, with their eligibility for a Title X grant dependent on the existence of separate accounting records, the separation of physical facilities, the separation of personnel and the extent to which signs and materials promoting abortion are absent. In contrast to the first version of the regulations, the revised version offered no concrete examples of what situations would be acceptable or unacceptable to the DHHS.

Finally, the original regulations had required that Title X grantees "take no action which encourages, promotes, or advocates abortion as a method of family planning, or which assists a woman in obtaining an abortion." Such actions, according to the DHHS, included lobbying, paying dues to organizations that advocate abortion, being involved in legal actions intended to protect the right of women to have abortions and developing or disseminating materials that advocate abortion. Many objected that these provisions were unconstitutionally vague and not politically neutral, especially in that they would allow organizations to spend money on antiabortion activities.

The Courts React

In response to a Colorado legal action by the Planned Parenthood Federation of America, District Court Judge Zita L. Weinscheink issued a preliminary injunction against the regulations on February 15, citing their "unduly burdensome interference with a woman's freedom to decide whether to terminate her pregnancy." Several days later, New York District Court Judge Lewis L. Stanton granted an injunction to the American Civil Liberties Union. Finally, on March 3, as a result of an action brought by the state of Massachusetts, the National Family Planning and Reproductive Health Association and the APHA, Massachusetts District Judge Walter Jay Skinner permanently enjoined enforcement of the regulations.* Judge Skinner noted that rather than being a simple extension of previous DHHS regulations, they "significantly expand the scope of prohibited activity." The judge expressed concern over the definition of Title X funds. Pointing out that a sizable percentage of a Title X recipient's budget is made up of matching funds and fees collected from patients, he concluded that the regulations "in fact significantly restrict a project's use of both federal, and nonfederal, money."

Judge Skinner observed that section 1008 is ambiguous: "It is not clear whether the prohibition . . . is limited to programs which offer or promote abortions, as plaintiffs say, or whether it provides a 'wall of separation' between Title X programs and all abortion-related activity, as the defendant says." He concluded that "Congress gave to the defendant very broad authority to promulgate regulations. . . . While a good case can be made for the plaintiffs' proposition that these regulations violate congressional intent, the question is not sufficiently free of doubt in my mind to justify judicial intervention." However, the judge added, past court rulings held that an agency must justify decisions to "change the course of long-standing administrative interpretation." Judge Skinner dismissed a DHHS claim that the new interpretation is mandated by the language of the statute and then debunked the department's claim that the regulations are needed to ensure compliance with section 1008: "All the evidence before the defendant indicated that Title X clinics were substantially complying with program requirements. . . . There was no suggestion [in the GAO report] that significantly more stringent regulations need be issued in order to assure compliance."

If there were no constitutional problems with the regulations, Judge Skinner observed that he could simply stay their imposition and ask the department to offer greater justification for the policy change. However, he continued, "such a procedure would be pointless." While the actual restrictions on lobbying and advocacy do not go beyond prior DHHS policy, they would have a wider impact because of "the new (and unwarranted) definition of 'Title X Project Funds.' " Contending that the prohibitions against using nonfederal funds for lobbying and against joining organizations that support abortion have serious constitutional problems, Judge Skinner argued that "the effect is to put the use of matching funds and the income from fee-paying clients under the same restrictions as funds appropriated by Congress. There is no basis for this definition in the statute and no legislative or administrative history to support it."

The language requiring physical separation was also problematic, according to the judge. "There is no indication in section 1008 that Congress intended to restrict the types of projects with which a Title X recipient could associate, or to place limitations on the physical proximity or the sharing of personnel between Title X projects and unrelated programs which may provide abortion services," Judge Skinner observed. "The legislative history of Title X offers persuasive evidence that the program integrity regulations run contrary to congressional intent."

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*At this time, some uncertainty remains as to who is affected by the various injunctions. While the case is on appeal, the DHHS has announced that it will selectively enforce the regulations only if one of the two judges who has issued a preliminary injunction rules in the department's favor. In such a case, any Title X recipient that is not a member of the APHA or the National Family Planning and Reproductive Health Association may have to adhere to the regulations (at DHHS discretion) until the appeals process is complete.

In discussing constitutional objections to the prohibition of abortion counseling, the judge pointed out that "a Title X project could be denied a grant for which it would otherwise be eligible, solely because its nonfederally funded activities include abortion referral and counseling. As a result, the regulations constitute an unconstitutional penalty for the exercise of First Amendment rights." Judge Skinner added that the restrictions on speech and on lobbying are based on content; that is, they do not prohibit funding of groups that undertake other types of abortion-related activities, such as antiabortion counseling or advocacy: "Because the restrictions are not narrowly tailored to serve any legitimate government interest, they violate both the First Amendment and the equal protection component of the Fifth Amendment." With regard to the restrictions on lobbying, the judge commented that "while the constitutional underpinning for the right to *have* an abortion is relatively abstruse . . . and remains the subject of learned discourse, the right to *talk* about abortion is firmly and expressly guaranteed."

Finally, noting that a woman's right to obtain an abortion is constitutionally protected from unduly burdensome government interference, the judge concluded that "a governmentally imposed block on the flow of neutral information bearing on abortion is an impermissible burden on the presently recognized rights of a pregnant client of a Title X clinic." For all of the above reasons, he permanently enjoined enforcement of the regulations. The DHHS recently filed a notice of appeal in the Court of Appeals for the first circuit, and requested that the appeals process be expedited.

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DIGEST

Despite Improvements in Knowledge About AIDS, Americans Still Fear Casual Contact with Carriers

Americans are fairly well informed about the cause of acquired immune deficiency syndrome (AIDS) and the ways of transmitting the virus; nonetheless, several surveys indicate that fear of casual contact with AIDS carriers persists. Seventy-three percent of adults say that AIDS is definitely or probably caused by a virus and more than 90 percent are aware of the three major sex-related or blood-related ways in which the virus is transmitted, according to a nationally representative survey conducted in November 1987 by the National Center for Health Statistics (NCHS).[1] Yet only 48 percent of people believe AIDS patients should be allowed to live in the community normally, according to a Gallup Poll.[2]

NCHS Survey

The first patients with AIDS in the United States were reported in 1981, and since then, almost all Americans have become aware of the existence of the disease. The NCHS survey found that more than 99 percent of persons 18 years of age and older say they have heard of AIDS, and 75 percent of them say no more than three days have passed since they last saw, heard or read something about AIDS. As a result of this attention to the issue, 72 percent of adults say it is probably or definitely true that AIDS is caused by a virus, 78 percent believe it is definitely or probably possible to be infected with the virus and not have the disease, and 89 percent are similarly certain that the disease cripples the body's immune system. In addition, 86 percent say there is definitely no cure for AIDS, and 92 percent are equally sure that it ends in death.

Most people have also absorbed information about the three major ways in which public health officials believe the AIDS virus is transmitted: Ninety-three percent consider it very likely that they could become infected by sharing needles for drug use with someone who has AIDS, 93 percent say infection is very likely if they have sex with a person who has AIDS, and 94 percent agree that it is definitely or probably true that a pregnant woman can give AIDS to her baby.

Doubts and misinformation also exist, however. Americans either don't know that blood banks now screen their products for the AIDS virus or they are skeptical about the effectiveness of screening: Sixty-five percent say it is very or somewhat likely (as opposed to somewhat, very or definitely unlikely) that a person who has a blood transfusion will get the AIDS virus. Furthermore, 22 percent of Americans believe it is very or somewhat likely they can get the AIDS virus by donating blood. (This may be a smaller proportion than previously held that opinion, however. A January 1986 NBC poll found that 33 percent of a nationwide sample thought they could get AIDS by donating blood.[3]) Sizable proportions of Americans also think it is possible to get AIDS by working near someone with the virus (17 percent say it is very or somewhat likely); eating in a restaurant where the cook has AIDS (30 percent); sharing plates, glasses or silverware with an AIDS patient (42 percent); using public toilets (27 percent); getting bitten by mosquitoes or other insects (32 percent); being coughed or sneezed on by someone who has AIDS (34 percent); and kissing (with exchange of saliva) a person who has AIDS (63 percent).

Despite the controversies that have surrounded school attendance by children with AIDS, only 10 percent of Americans say they believe that attending school with a child who has AIDS is very or somewhat likely to result in infection. Public opinion may have softened considerably since this issue first arose. A November 1985 nationwide poll conducted by NBC News found that only 40 percent of the public thought that children who have been diagnosed as having AIDS should be allowed to attend school with other children.[4] By January 1987, 64 percent had a comparable response.[5] CBS polls indicate a similar trend: In 1985, 40 percent of respondents said they would let children who have AIDS go to school, and in October 1986, 56 percent said AIDS patients should be allowed to attend school.[6]

The answers to questions about preventive sexual practices show that 95 percent of people know that being celibate is a somewhat or very effective way to avoid contracting the disease, and 93 percent are aware that a monogamous relationship between two people who do not have the AIDS virus protects them from being infected. In addition, 81 percent recognize that using a condom is an effective anti-AIDS measure. The majority of respondents know that other measures suggested to them are unlikely to be effective: Only 15 percent believe they can get protection from a spermicide, and 13 percent, from a diaphragm.

Only six percent of those polled say they have personally known someone with AIDS, and most Americans apparently do not fear contracting AIDS. Only four percent of respondents think that they have a medium or high chance of getting the AIDS virus; 63 percent believe there is no chance of their becoming infected. Seventy-two percent of Americans know that there is a blood test that will detect the AIDS virus, and seven percent report that their blood has been tested, although two percent note that the testing was done in conjunction with a blood donation or transfusion. Provided the privacy of test results could be assured, 69 percent of Americans say they would be willing to have a blood test for AIDS if asked to do so as part of a national program to determine how widespread the AIDS virus is.

Respondents identify television, newspapers and magazines as their major sources for information about AIDS: Fifty-seven percent name television as the single most important source; 19 percent cite newspapers; and nine percent, magazines. About 68 percent of respondents with children aged 10–17 say they have discussed AIDS with their children. While 51 percent of parents say they are sure their children have had AIDS instruction in school, 19 percent say their children have not, and 30 percent don't know.

In general, people aged 50 and older are less knowledgeable about AIDS, its causes and its consequences than are younger people. For example, only 30 percent of the older age-group compared with 55 percent of those aged 18–49 are sure that AIDS is caused by a virus, and 71 percent of the older respondents compared with 86 percent of the younger ones are aware that the condom is an effective preventive against the AIDS virus. There is little difference between men and women in their responses to any of the questions, nor is there a notable difference between single and married respondents. The answers of black respondents and white respondents are fairly similar, although blacks are more likely than whites to believe that the virus can be transmitted through indirect contacts, such as donation of blood (45 percent and 19 percent, respectively, consider this a likely route of transmission) or use of public toilets (41 percent and 24 percent, respectively). In addition, blacks are less likely than whites to believe that celibacy or a monogamous relationship will protect them against AIDS.

Gallup Polls

A July 1987 Gallup poll probed public attitudes toward patients with AIDS and the public's opinions about how society should respond to such patients.[7] Although 78 percent of respondents said they agreed with the statement that AIDS sufferers should be treated with compassion, their responses to specific suggestions showed less unanimity. Only 48 percent of the national sample agreed that people with AIDS should be allowed to live in the community normally. Furthermore, 59 percent said they believed that people with the AIDS virus should be made to carry a card indicating that they are infected, and 33 percent said they thought employers should have the right to dismiss employees who have AIDS without reason other than their illness.

There are generally no major differences in the responses to these suggestions by sex, race, region of the country or political party. However, people younger than 30, those with a college education and those with a household income of at least $40,000 were more inclined to show tolerance for AIDS victims by saying they should be allowed to live and work normally than were Americans 65 and older, those without a high school education and those with incomes of less than $15,000. Americans who classified themselves as evangelicals were less tolerant than were nonevangelicals.

Another 1987 Gallup Poll found that the public favors testing a number of population groups for the presence of the AIDS virus, even though most of these groups are not at increased risk for the AIDS infection.[8] For example, 90 percent of respondents said they thought that immigrants should be tested, 88 percent agreed that inmates of federal prisons should be, 83 percent favored testing members of the armed forces, 80 percent would test couples applying for marriage licenses, and 66 percent would target visitors from foreign countries. Although these proportions are high, they are not so surprising considering that 52 percent of respondents thought that all American citizens should be tested for the AIDS virus.

Background characteristics of the respondents did not cause much variation in the nearly unanimous opinion that immigrants ought to be tested. The only notable demographic disparities on the question of testing prison inmates are by educational level: Eighty-two percent of college graduates favored it, compared with 93 percent of respondents without a high school diploma. A disparity of 10 percentage points exists between respondents from the Midwest and those from the South on whether members of the armed forces should be tested—78 percent and 88 percent, respectively—and a similar disparity exists between those younger than 50 and those older than 50. A difference of opinion by age-group occurs when Americans are asked if couples applying for marriage licenses ought to be tested—71 percent of those aged 18–29 favored doing so, compared with 87 percent of those aged 50 and older.

The testing of visitors from foreign countries provokes disparities by race (64 percent of whites favor such testing, compared with 76 percent of blacks), political party (60 percent of Republicans and 73 percent of Democrats), educational level (ranging from 49 percent of college graduates to 78 percent of respondents without a high school diploma) and household income (ranging from 52 percent of those earning at least $40,000 to 76 percent of those making less than $15,000). Almost as much disagreement exists on the question of whether all Americans should be tested, and the biggest differences are by educational level (ranging from 39 percent in favor among college graduates to 64 percent among those who did not finish high school) and by income (42 percent of those at the top economic level favored universal testing, compared with 61 percent of those at the bottom).

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College Graduates May Soon Be More Likely Than Others to Marry

The common assumption that highly educated women are less likely than other women to marry may have to be revised. Recent trends among U.S. women suggest that the negative relationship between education and marriage has weakened and that it may eventually reverse itself, according to an analysis carried out by Jeanne Moorman, a researcher with the Bureau of the Census.[1]

The analysis of historical trends in the relationship between education and marriage was based on census data for 1940, 1950, 1960, 1970 and 1980. Applying life-table techniques to marriage rates by age and education from the 1980 census, the researcher made projections of the likelihood that women of differing educational levels will marry. Data from the Vital Registration System and the 1985 Current Population Survey were also used in the analysis.

Findings

In 1980, the median age at marriage among women aged 25–34 who had completed four years of college was 23, and among those who had graduated from high school, it was 20. However, almost 25 percent of women with exactly four years of college in this age-group were still single, compared with about 12 percent of those with only a high school education. Consequently, the researcher points out, the difference between the groups in the median age at marriage may increase by the time women aged 25–34 complete their marriage experience.

In addition to having a propensity to delay marriage, college-educated women have historically been less likely than their less-educated counterparts to marry at all: Among women in every age-group in 1980, those who had completed more than four years of college were three times more likely than high school graduates not to have married, and those who had completed four years of college were two times more likely not to have done so. Overall, a considerably higher proportion of women aged 25–34 than of those aged 35–64 had not married.

A comparison of the marriage experience of five birth cohorts of women reveals that educational differences in the proportion who marry decrease as a cohort ages. For example, among women born in 1935–1945, those who had completed high school were much more likely than those who had completed four years of college to have married by ages 25–34 (93 percent vs. 81 percent, respectively). Ten years later, however, the difference between the proportions of high school and college graduates who had married was of lesser magnitude (96 percent vs. 89 percent, respectively).

Further, the data indicate that in general, the negative relationship between education and marriage has weakened with each successive cohort. Among the oldest three cohorts of women—born in 1915–1925, 1925–1935 and 1935–1945—those who had completed more than four years of college were considerably less likely ever to marry than were women with four years of college or those who had graduated from high school. Among women born in 1945–1955, however, those with more than four years of college were only slightly less likely than those with just four years of college or those with four years of high school ever to marry.

The researcher hypothesizes that if higher proportions of women pursue college careers in the future, having a college degree will become the norm; consequently, the trend toward decreasing educational differences in the proportion ever marrying should continue. She also speculates that the observed negative relationship between education and marriage should be considerably diminished, or eliminated entirely, by the time the youngest women reach the age of 65.

Life-table analysis showing the likelihood of eventual marriage indicates that for each of the age-groups 30–34 and older in 1985, women with four years of high school will be slightly more likely to marry by age 65 than will college graduates. However, college-educated women aged 30–34 in 1985 will be the last cohort to have a lower probability of marriage than their counterparts who are high school graduates. Further, the results suggest, college-educated women under the age of 30 in 1985 will be more likely to marry eventually than will less-educated women: Among women aged 25–29, 94 percent of those with four years of college, compared with 92 percent of those with four years of high school, will be likely to marry by the age of 65. For their 15–19-year-old counterparts, the proportions are 94 percent and 87 percent.

The investigator points out that the results of life-table analysis are simply projections of current rates and that these projections depict one possible future. Other analytic methods based on different data have produced, and will produce, widely divergent results, she cautions.

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Maternal Values Help Shape Sexual Attitudes And Behavior of Teens

Although adolescents generally have more permissive attitudes toward premarital sex than do their mothers, the mothers' characteristics and values do influence the sexual attitudes and, to a lesser extent, the behavior of their children. According to a recent study, teenagers whose mothers are fundamentalist Protestants or whose mothers attend church regularly tend to disapprove of premarital sex and are less likely than other teenagers to be sexually experienced. In contrast, adolescents whose mothers had a premarital pregnancy, married young or divorced and remarried are more likely than other teenagers to hold liberal sexual attitudes and to have had intercourse.[1]

Data for the analysis come from a probability sample of white children and their mothers selected from the birth records of the Detroit metropolitan area in July 1961. The mothers were interviewed a number of times between 1962 and 1980. The children also were interviewed in 1980, when they were 18 years old. The 1980 survey sample, which represented 85 percent of the original sample, consisted of 916 families in which both mother and child were interviewed.

Besides demographic characteristics, mothers were asked about their religion and church attendance, education, labor-force participation, marital history and premarital pregnancy experience. In the 1980 interview, both mothers and children were asked their opinions about the appropriateness of premarital sexual activity for young people; the teenagers also were asked about their perceptions of their mothers' attitudes toward premarital sex and about their own sexual experience.

The researchers used multivariate analysis to examine the effect of maternal characteristics and sex-related attitudes on the teenagers' attitudes and behavior. Effects were measured by means of standardized regression coefficients. To determine whether effects differed according to gender, families with sons were analyzed separately from families with daughters.

Attitudes

Thirty-two percent of the mothers, 65 percent of the daughters and 77 percent of the sons expressed approval of premarital sex for young people. However, only 15 percent of the sons and eight percent of the daughters *thought* that their mothers approved of premarital sex.

Fundamentalist Protestant mothers, those who attended church regularly, mothers who married at older ages and those who had raised large families were significantly less likely than others to approve of premarital sex. On the other hand, mothers with more education, those who had had a premarital pregnancy and those who had divorced and remarried were significantly more likely than others to approve of it.

Overall, the mothers' characteristics and attitudes were found to have a significant influence on their children's attitudes toward premarital sex. In particular, adolescents whose mothers were fundamentalist Protestants and those whose mothers attended church regularly were significantly less likely than others to approve of premarital intercourse. Teenagers whose mothers had divorced and remarried and those whose mothers were older were significantly more likely than others to approve of premarital sex. The daughters, but not the sons, of mothers who had had a premarital pregnancy were significantly more likely than their peers to approve of premarital sex.

Behavior

Sixty-four percent of the sons and 55 percent of the daughters said that they had ever had intercourse. Among all the adolescent respondents, nearly two-fifths (44 percent of the sons and 31 percent of the daughters) reported having had intercourse with more than one partner.

Several of the maternal variables that were found to have a significant impact on adolescent sexual attitudes also influenced their sexual behavior, but the effects were weaker. Teenagers whose mothers were fundamentalist Protestants were significantly less likely than others to have had sexual intercourse, but the regression coefficient measuring this effect was smaller than the coefficient measuring the effect on adolescents' attitudes. Mothers' regular church attendance had a nonsignificant negative effect on the sexual behavior of sons and daughters combined; however, when sons and daughters were examined separately, mothers' church attendance was found to have a significant negative effect on the behavior of sons, but it had a nonsignificant positive effect on that of daughters.

Although better-educated mothers tended to have liberal attitudes toward premarital sex, their children were significantly less likely than others to have had intercourse; however, this negative effect was found only for daughters.

In contrast, a few of the maternal variables that had no influence on adolescents' sexual attitudes did have an impact on their sexual behavior. Teenagers whose mothers had had a premarital pregnancy, for example, were significantly more likely than others to have had intercourse, whereas those whose mothers had married at older ages were significantly less likely than their peers to have had intercourse.

Adolescents with divorced and remarried mothers had more permissive attitudes than did other teenagers, and were also more likely to have become sexually active. However, neither effect was found among children whose mothers had divorced but not remarried.

The researchers conclude that the attitudes and experiences of mothers shape the sex-related attitudes and behavior of their children in important ways. They regard the findings on divorce and remarriage as particularly noteworthy, and suggest that the positive effects on attitudes and behavior found among teenagers with remarried mothers, but not among those whose mothers did not remarry, may reflect the influence of the courtship process leading up to the mothers' remarriage. The influence of maternal courtship patterns, they also note, may be demonstrated by the positive effect of maternal premarital pregnancy and early age at marriage on teenage sexual activity. The researchers suggest that increases in divorce and remarriage during the 1960s and 1970s "may [have been] partially responsible for some of the increased premarital sexuality during the period."

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Among Women Aged 35–44, Most Excess Cases Of Heart Attacks Are Due to Smoking, Not Pill Use

Although women who both use oral contraceptives and smoke are at increased risk for myocardial infarction, most excess cases of the disease are attributable solely to smoking. This is the principal conclusion of a recent study that examined the combined and independent effects of smoking and pill use on nonfatal myocardial infarction among American women.[1]

The study sample consisted of 5,779 randomly selected women aged 18–44 who were interviewed by telephone during 1981–1983 about a number of behaviors that affect health, including pill use and smoking.

Women who were currently using any pill preparation were considered oral contraceptive users. Women who had smoked 100 or more cigarettes during their lifetime or who currently smoked were considered smokers. Smokers were further divided into light smokers (1–24 cigarettes a day) and heavy smokers (more than 25 cigarettes a day). In all, there were six categories of risk: nonsmokers who did and did not use the pill; light smokers who did and did not use the pill; and heavy smokers who did and did not use the pill. The data were weighted and then aggregated to provide a representative sample of the 1982 U.S. adult female population. Although the data were stratified into three age-groups (18–24, 25–34 and 35–44), the analysis was restricted to those aged 35–44 because the risk of myocardial infarction is increased among such women.

The researchers computed two measures of the relative impact of smoking and pill use on nonfatal myocardial infarction. The first measure was the population attributable risk (PAR), which represents the proportion of cases in each risk category that could be prevented if women neither smoked nor used oral contraceptives. The PAR was estimated by applying relative risk estimates, based on findings from a study carried out in 1979,[2] to prevalence rates of disease for each category. The second measure was the number of excess cases of myocardial infarction for each risk category (cases that could be prevented if women neither smoked nor used oral contraceptives), which was calculated by multiplying the number of cases of nonfatal myocardial infarction for each risk category by the PAR for each category.

Findings

Overall, slightly more than seven percent of U.S. women aged 18–44 (or 2.7 million women) smoke and use oral contraceptives concurrently, and one out of seven such women are heavy smokers. One out of four smokers use oral contraceptives, and one out of three pill users smoke. Among women who use oral contraceptives, those aged 18–24 are more likely to smoke than are those aged 35–44 (16 percent vs. two percent, respectively). However, among women who do not use the pill, 18–24-year-olds are less likely to smoke than are 35–44-year-olds (22 percent vs. 37 percent, respectively).

Based on data from the 1982 Hospital Discharge Survey, the researchers estimate that there were 3,173 excess cases of nonfatal myocardial infarction during that year among women aged 35–44. Nonsmokers who were using the pill accounted for only 7.5 percent of the excess cases. On the other hand, smokers who were *not* using oral contraceptives accounted for 75 percent of the excess cases—a 10-fold difference.

Nevertheless, combined smoking and oral contraceptive use was associated with a disproportionate number of excess cases of nonfatal myocardial infarction: Although only two percent of women aged 35–44 smoked and used the pill concurrently, such women accounted for about 17 percent of the excess cases of disease.

The researchers note that since the number of cigarettes smoked is often underreported, estimates of the prevalence of combined smoking and oral contraceptive use are likely to be conservative, particularly for heavy smokers. Further, they point out, the population attributable risk for pill use may now be lower than that reported in their study because the oral contraceptives commonly prescribed in the 1980s use lower dosages than the pill preparations popular in the 1970s.

Although the investigators believe that women should be warned that the combination of smoking and oral contraceptive use is more hazardous than either behavior by itself, they emphasize that smoking is the behavior most responsible for nonfatal myocardial infarction among 35–44-year-olds. However, noting that pregnancy carried to term is more dangerous than combined smoking and pill use, except for women aged 35 or older, they conclude that health care providers should base their decision to prescribe oral contraceptives for younger women on factors other than smoking.

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Ectopic Pregnancy Death Rates Down; Differences Persist by Age and Race

Between 1970–1976 and 1977–1983, the risk of dying from ectopic pregnancy declined in the United States by 63 percent—from 20 to seven deaths per 10,000 cases—while the number hospitalized for this condition doubled. Declines in the ectopic pregnancy mortality risk occurred among women of all ages and races and in all regions of the country. However, teenagers remained one and one-half times as likely to die from the condition as were other age-groups, and nonwhites remained more than three times as likely to die as were whites. More than half of the women with a fatal ectopic pregnancy had received no treatment, and more than a third of those who died did so at home or in transit to a hospital.

Researchers from the Centers for Disease Control (CDC), who reported these findings, used data from the National Hospital Discharge Survey, the vital statistics system and the CDC's Ectopic Pregnancy and Abortion Surveillance systems to estimate the number of ectopic pregnancies, the number of deaths and detailed characteristics of the women who died.[1] The investigators calculated the mortality risk as the number of women who died from ectopic pregnancy per 10,000 women hospitalized for the condition. Subgroup differences in ectopic pregnancy mortality risk were examined for two seven-year periods: 1970–1976 and 1977–1983.

Between the two periods, the number of hospitalizations for ectopic pregnancy rose sharply, from 179,800 to 385,600 cases, but the number of deaths fell from 358 to 286. Thus, the risk of death from ectopic pregnancy declined from 19.9 to 7.4 per 10,000 cases among women aged 15–44. The mortality risk for white women fell 63 percent, from 11.9 to 4.3. Although nonwhite women experienced a comparable (60 percent) reduction in risk—from 39.9 deaths in the early period to 16.1 in the later—they were 3.7 times as likely as whites to die from ectopic pregnancy.

During both periods, teenagers suffered the highest mortality risk of all age-groups, although their risk had fallen 69 percent, from 30.7 deaths per 10,000 cases in the earlier period to 9.5 in the later. The mortality risk varied little among the other age-groups. Nonwhites in virtually every age-group had a significantly higher risk of dying from ectopic pregnancy than did their white peers. The greatest racial difference appeared among teenagers; during 1977–1983 nonwhite women 15–19 years old were eight times as likely to die as were white teenagers, a substantial increase from their 1970–1976 relative risk of 3.7. For white women, age-specific mortality risk had a narrow range (3.5–5.1), but for nonwhites the age-specific risk varied widely (12.4–31.7). Whereas mortality risk decreased with age for white women in both periods, among nonwhites the risk decreased between ages 15–19 and 25–29 and then rose again.

The mortality risk for ectopic pregnancy varied considerably by region during 1970–1976, ranging from a low of 13.4 deaths per 10,000 cases in the West to a high of 27.0 in the South. By 1977–1983, regional variation was much reduced, with the risks ranging from 7.1 to 8.5. The greatest reduction in mortality risk (74 percent) occurred in the South.

Additional information on ectopic pregnancy deaths was available only for the period 1979–1982. Of 165 women with fatal ectopic pregnancies during those years, 34 percent had died at home or on the way to the hospital, and 54 percent had received no treatment. Eighty-eight percent of the women died from hemorrhaging; 29 percent died from hemorrhaging despite having undergone surgery. Laparotomies were performed on 38 percent of those who died. Among the 90 deaths for which gestational age was known, 58 percent occurred before nine weeks' gestation, 13 percent during 9–10 weeks', and the remaining 28 percent at 11 weeks' gestation or later.

The researchers mention lack of early prenatal care as a partial explanation for the higher mortality risks experienced by teenagers and nonwhites, noting that the prevention of deaths from ectopic pregnancy depends to a large extent on early diagnosis. They maintain that because of this inadequate prenatal care, as well as physician misdiagnosis and inappropriate hospital treatment, there is "a substantial proportion of deaths that may be preventable." The average annual decline in the death-to-case rate for ectopic pregnancy had been 15 percent during 1970–1978; however, during 1978–1983 the rate declined only five percent annually. The researchers conclude that further improvements in preventing deaths from ectopic pregnancy will require early prenatal care for all women, particularly teenagers and nonwhites, as well as an increased awareness among physicians, public health workers and their patients of the signs and symptoms of this sometimes fatal condition.

Reference

1. H. K. Atrash, A. Fried and C. J. R. Hogue, "Ectopic Pregnancy Mortality in the United States, 1970–1983," *Obstetrics and Gynecology*, **70:**817, 1987.

Even After Many Years, Men Wed in Teens Lag In Education, Income

Men who marry as teenagers appear to complete fewer years of education, hold lower status jobs and earn less than their peers who postpone marriage until adulthood, even after the passage of 30 to 40 years. In addition, early-marrying men dissolve their initial and subsequent unions more frequently than do men who postpone marriage. The differentials in socioeconomic status and marital disruption, moreover, appear among younger and older cohorts, and among both whites and blacks. These are some of the findings of a recent study examining the long-term socioeconomic and marital consequences of adolescent marriage.[1]

Data for the study were obtained from a nationally representative sample of civilians aged 14 and older included in a survey of the general labor force that was conducted by the Bureau of the Census in 1980. From this sample, investigators selected three cohorts of ever-married white and black males aged 30–35, 40–45, and 50–55, for a total sample of 14,632 men. Most of the men had married in the 1940s, 1950s and 1960s. Men who initially married before age 19 were considered to have made an adolescent marriage; those who first married between the ages of 19 and 29 were considered to have made adult marriages. The researchers performed a multivariate analysis using education, occupational status and family income as dependent variables.

The analysis showed that in each age cohort, the age at which the men initially married had significant effects on income, education and occupational status by 1980. For the entire sample, men who married as adolescents reported lower family incomes ($22,950 vs. $25,470) and had completed fewer years of school (11.8 vs. 13.1) than had men who married later. As measured by a 78-point index, the occupational status of early-marrying men was lower (32.2 vs. 39.0) than that of later-marrying men.

The differentials between the two age-at-marriage groups were found to be roughly equivalent in all three age cohorts, despite the researchers' hypothesis that adolescent marriage might have a greater negative effect on younger cohorts because educational attainment is more crucial in determining occupational status today than it was earlier in the century. However, in the 30–35 cohort, early-marrying white men attained an average of two fewer years of education than their later-marrying peers, a statistically significant difference ($p<0.01$), whereas the gap in educational attainment for black men was less than six months, a nonsignificant difference. The researchers interpret these data, with caution, as suggesting that in the youngest cohort, the adverse effects of early marriage have become greater for younger whites, or conversely, that black males in this cohort have become more successful in adjusting to adolescent marriage than have whites with regard to educational attainment.

Within each age and marriage cohort, blacks earned less, had completed fewer years of education and held lower status jobs than did whites. However, the gaps in education and income between the races had narrowed considerably in the younger cohort. The average family income of black men 50–55 years old was 67 percent of that of their white peers; for blacks 30–35, income was 82 percent of whites'. The researchers attribute the improved economic position of younger blacks to gains made in education. Whereas white men 50–55 years old had completed an average of two more years of schooling than had their black peers, the racial difference in educational attainment had been reduced to less than one year for men in the youngest cohort.

The investigators hypothesized that because of the prevailing tolerance in society toward divorce and remarriage, the younger cohort would have marital disruption patterns similar to the older cohorts, even though older men would have had more years in which to change marital status. As expected, the proportion of early-marrying men who had divorced and remarried was similar (about 45 percent) for each age cohort. Significant differences ($p<0.001$) existed between early- and later-marrying men in the frequency of disrupted marriages. Among all cohorts, between 30 and 36 percent of the men who married as adolescents had entered second unions, and roughly 10 percent had married three or more times. Among men marrying as adults, however, between 13 and 16 percent had married twice, and no more than three percent had entered three or more unions.

While concluding that the adverse effects of adolescent marriage are "long-lasting and pervasive," the researchers caution that men who married as adolescents may have already been economically disadvantaged; no data on the socioeconomic status of the respondents' families of origin were gathered. Thus, the investigators note that they "may have overestimated the effects of early marriage on socioeconomic status." However, since previous research has found that adolescent marriage is associated with a significant limitation of educational attainment (exclusive of the effects of socioeconomic status prior to marriage), the investigators believe it likely that significant effects were involved in their study.

Reference

1. D. M. Teti, M. E. Lamb and A. B. Elster, "Long-Range Socioeconomic and Marital Consequences of Adolescent Marriage in Three Cohorts of Adult Males," *Journal of Marriage and the Family*, **49**:499, 1987.

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ORAL CONTRACEPTIVE (O.C.) AGENTS

Indications Prevention of pregnancy. *DOSE-RELATED RISK OF THROMBOEMBOLISM.* Because studies have shown a positive association between OC estrogen dose and risk of thromboembolism, it is prudent to minimize estrogen exposure. Prescribe an OC with the least amount of estrogen compatible with an acceptable pregnancy rate and patient acceptance. Start new users on OCs containing 0.05 mg or less of estrogen.

Contraindications 1. Known or suspected pregnancy (see Warning #5). 2. Thrombophlebitis or thromboembolic disorders. 3. Past history of deep vein thrombophlebitis or thromboembolic disorders. 4. Undiagnosed abnormal genital bleeding. 5. OCs should not be used by women who have or have had any of the following: a. cerebral vascular or coronary artery disease, including myocardial infarction. b. known or suspected carcinoma of the breast. c. known or suspected estrogen dependent neoplasia. d. benign or malignant liver tumor that developed during use of OCs or other estrogen containing products.

WARNINGS: Cigarette smoking increases the risk of serious cardiovascular side effects from OC use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use OCs should be strongly advised not to smoke.

The use of OCs is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, liver tumor, gall bladder disease, visual disturbances, fetal abnormalities, and hypertension. Practitioners prescribing OCs should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems:* An increased risk of thromboembolic and thrombotic disease associated with OC use is established. One study demonstrated an increased relative risk for fatal venous thromboembolism and several studies demonstrated it for non-fatal venous thromboembolism. They estimate that OC users are 4-11 times more likely than nonusers to develop these diseases without evident cause. One British study reported an excess death rate of 40% in OC users, most of which resulted from cardiovascular disease. Another British study showed a lower death rate in OC users than controls; an increase in cardiovascular deaths was seen but was not statistically significant. A U.S. prospective study failed to disclose increased mortality rates from cardiovascular disorders, but a subset analyzed as a retrospective, case-control study showed significant increases in venous thromboembolism. CEREBROVASCULAR DISORDERS. Two American studies demonstrated an increased relative risk for stroke not shown in prior British studies. In an American study of cerebrovascular disorders in women with and without predisposing causes, relative risk of hemorrhagic stroke was estimated as 2.0 times greater and thrombotic stroke as 4-9.5 times greater in users than nonusers. A British long-term follow-up study reported in 1976 a highly significant association between OC use and stroke. Another study had suggested an association in 1974, but the number of cases was too small to estimate the risk. Subarachnoid hemorrhage has been shown to be increased by OC use in British and American studies. Smoking alone increases incidence of these accidents; smoking and pill use appear to increase risk more than either alone.

MYOCARDIAL INFARCTION (MI). Increased relative risk of MI associated with OC use has been reported. One British study found that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia) the higher the risk of developing MI, regardless of OC use. OCs were an additional risk factor. In terms of relative risk, it has been estimated that nonsmoking OC users (smoking is considered a major predisposing condition to MI) are twice as likely to have a fatal MI as nonsmoking nonusers. OC users who are smokers have a 5-fold increased risk of fatal infarction compared to nonsmoking users, and a 10-12-fold increased risk compared to nonsmoking nonusers. The number of cigarettes smoked is important. In determining the importance of these relative risks, baseline rates for various age groups must be considered. (Estimates are based on British vital statistics which show acute MI death rates 2-3 times less than in the U.S. so U.S. death rates could be higher.) Importance of other predisposing conditions in determining relative and absolute risks has not been quantified; other synergistic actions may exist. RISK OF DOSE. Using data from several national adverse reaction reporting systems, British investigators concluded that risk of thromboembolism, including coronary thrombosis, is directly related to estrogen dose in OCs. OCs with 0.1 mg or more of estrogen were associated with a higher risk of thromboembolism than those containing 0.05-0.08 mg but quantity of estrogen may not be the sole factor. This was supported by a U.S. study. A British study found a positive association between dose of progestogen or estrogen and certain thromboembolic conditions. Swedish authorities noted decreased reporting of thromboembolic episodes when higher estrogen preparations were no longer prescribed. Careful epidemiological studies to determine degree of thromboembolic disease risk associated with progestogen-only OCs have not been done. Thromboembolic disease has been reported in women using these products, and they should not be considered free of excess risk. PERSISTENCE OF RISK. Two studies have suggested an increased risk may persist for 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI; another study suggested the persistence of risk for subarachnoid hemorrhage. ESTIMATE OF EXCESS MORTALITY FROM CIRCULATORY DISEASES. A large British prospective study estimated mortality rate per 100,000 women per year from circulatory system diseases for OC users and nonusers according to age, smoking habits, and duration of use. The overall annual excess death rate for OC users was estimated to be 20/100,000 (ages 15-34–5/100,000; ages 35-44–33/100,000; ages 45-49–140/100,000). Risk is concentrated in long-term users and in smokers, and may persist after OC discontinuation. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all occurred in women 35 or older. An update provided the following rates: ages 15-34–1/6700 for nonsmokers and 1/2000 for smokers; ages 45 and over–1/2500 for nonsmokers and 1/500 for smokers. Risk appeared to increase with parity, but not with duration of use. Until more women under 35 with continuous use for 5 or more years are available, it is not possible to assess relative risk for this age group. Data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. Estimates include combined risk of the contraceptive method (e.g., thromboembolic and thrombotic disease for OCs) plus risk attributable to pregnancy or abortion if the method fails (which varies with the effectiveness of the contraceptive method). The study concluded that mortality associated with all contraceptive methods is below that of childbirth, except for OCs in women over 40 who smoke. (Rates given for pill only/smokers for each age are for smokers as a class. For "heavy" smokers (more than 15 cigarettes a day), the rates would be about double; for "light" smokers (less than 15), about half.) The lowest mortality is with the condom or diaphragm backed up by early abortion. The study also concluded that OC users who smoke, especially over 30, have greater mortality risk than OC users who do not smoke.

Risk of thromboembolic and thrombotic disease associated with OCs increases with age after 30 and for MI is further increased by hypertension, hyperlipidemias, obesity, diabetes, or history of preeclamptic toxemia, and especially by smoking. The following chart gives a gross estimate of risk of death from circulatory disorders associated with OC use.

SMOKING HABITS AND OTHER PREDISPOSING CONDITIONS–RISK ASSOCIATED WITH USE OF OCs

Age	Below 30	30-39	40 +
Heavy smokers	C	B	A
Light smokers	D	C	B
Nonsmokers (no predisposing conditions)	D	C,D	C
Nonsmokers (other predisposing conditions)	C	C,B	B,A

A–Use associated with very high risk.
B–Use associated with high risk.
C–Use associated with moderate risk.
D–Use associated with low risk.

Physician and patient should be alert to earliest manifestations of thromboembolic and thrombotic disorders (e.g., thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). Should any of these occur or be suspected, discontinue OC immediately. A 4-6 fold increased risk of post-surgery thromboembolic complications has been reported in OC users. If feasible, discontinue OCs at least 4 weeks before surgery associated with increased risk of thromboembolism or prolonged immobilization. Before resuming OC after major surgery or bedrest, balance risks of post-surgery thromboembolic complications with contraceptive needs. Data suggest varicose veins substantially increase risk of superficial venous thrombosis of the leg, the risk depending on the severity of the varicosities. 2. *Ocular Lesions:* Neuro-ocular lesions such as optic neuritis or retinal thrombosis have been associated with OC use. Discontinue OC if there is unexplained, sudden, or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions; and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma:* Long-term continuous administration of natural or synthetic estrogen in certain animals increases certain tumors, benign or malignant, such as breast, cervix, vagina, uterus, ovary, pituitary and liver. Certain synthetic progestogens, none currently in OCs, increase the incidence of mammary nodules, benign and malignant, in dogs. Several retrospective case-control studies reported an increased relative risk (3.1-13.9 times) associating endometrial carcinoma with the prolonged use of estrogens in postmenopausal women. One publication reported the first 30 cases submitted to the registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the adenocarcinomas found in women without predisposing risk factors for adenocarcinoma of the endometrium (e.g., irregular bleeding when OCs were first given, polycystic ovaries), nearly all occurred in women who had used sequential OCs, which are no longer marketed. No statistical association has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs, although individual cases have been reported. Studies have shown no increased risk of breast cancer to OC or estrogen users. One study found no overall increased risk of breast cancer in OC users but a greater risk was suggested for OC users with documented benign breast disease and for long-term (2-4 years) users. Another study found a history of breast cancer among grandmothers or aunts was significantly more frequent among breast cancer patients who had used an OC continuously for one or more years than among nonusers with breast cancer. One other study indicated an increasing risk of breast cancer in women taking menopausal estrogens, which increased with duration of follow-up. One author suggests that extended (over 6 years) OC use prior to first full term pregnancy was associated with a significant relative risk of breast cancer. A reduced occurrence of benign breast tumors in OC users has been well documented. One study reported malignant melanoma more frequently in OC users than controls and suggests an increased incidence of urinary tract and thyroid cancers. A prospective study of women with cervical dysplasia found an increase in severity and conversion to cancer *in situ* in OC users compared to nonusers. This became statistically significant after 3-4 years of use. Nonreversal of dysplasia within the first 6 months of pill use was suggested to predict progression after prolonged exposure. One study disclosed an increased risk of cancer of the cervix (largely carcinoma *in situ*) in OC users under 40, particularly those who had used OCs over 4 years. There have been other reports of microglandular hyperplasia of the cervix in OC users. One study reported an association between OC use and endocervical adenocarcinoma. In summary, there is no confirmed evidence from human studies of increased risk of cancer associated with OCs. Close clinical surveillance of all OC users is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, take appropriate diagnostic measures to rule out malignancy. Monitor OC users with a strong family history of breast cancer or who have breast nodules, fibrocystic disease or abnormal mammograms with particular care. 4. *Liver Tumors:* Sudden severe abdominal pain or shock may be due to rupture and hemorrhage of a liver tumor. There have been reports associating benign or malignant liver tumors with short-term and long-term OC use. One study reported use of OCs with high hormonal potency and age over 30 may further increase risk of hepatocellular adenoma. Two studies relate risk with duration of use, risk being much greater after 4 or more years of use. Long-term OC users have an estimated annual incidence of hepatocellular adenoma of 3-4/100,000. Although an uncommon lesion, it should be considered in women presenting with an "acute abdomen". The tumor may cause serious or fatal hemorrhage. Patients with liver tumors have demonstrated variable clinical features which may make preoperative diagnosis difficult. Some cases presented because of right upper quadrant masses, while most had signs and symptoms of acute intraperitoneal hemorrhage. Routine radiological and laboratory studies may not be helpful. Liver scans may show a focal defect. Hepatic arteriography may be useful in diagnosing primary liver neoplasm. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring:* Use of female sex hormones–estrogenic and progestational agents–during early pregnancy may seriously damage the offspring. Females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated to be of the order of 1/1000 exposures or less. Although there is no evidence that OCs further enhance the risk of developing this type of malignancy, such OC users should be monitored with particular care. A high percentage of women exposed to diethylstilbestrol (30-90%) have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are a precursor of vaginal malignancy. Male children so exposed may develop urogenital tract abnormalities. Although similar data are not available on other estrogens, it cannot be presumed that they would not induce similar changes. Increased risk of congenital anomalies, including heart and limb defects, has been reported following use of sex hormones, including OCs, in pregnancy. One case-control study estimated a 4.7-fold increased relative risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some exposures involved only a few days of treatment. Data suggest risk of limb-reduction defects in exposed fetuses is somewhat less than 1/1000 live births. In a large prospective study, cardiovascular defects in children born to women who received female hormones, including OCs, during early pregnancy occurred at 18.2/1000 births, compared to 7.8/1000 for children not so exposed *in utero*. These results are statistically significant. A Welsh study found a statistically significant excess of neural tube defects among offspring of prior OC users (within 3 months) than among controls. The incidence of twin births may be increased for women who conceive shortly after discontinuing OC use. In the past, female sex hormones were used during pregnancy in an attempt to treat threatened or habitual abortion. There is evidence that estrogens are ineffective, and there is no evidence from well controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. If the patient has not adhered to the prescribed schedule, consider possible pregnancy at the first missed period (or 45 days from the last menstrual period if progestogen-only OCs are used) and discontinue OC use until pregnancy has been ruled out. For any patient who has missed two consecutive periods, rule out pregnancy before continuing the OC. If pregnancy is confirmed, tell the patient about potential risks to the fetus and discuss advisability of continuing the pregnancy. Women who discontinue OCs to become pregnant should use an alternate form of contraception for a period of time before attempting to conceive. A 3-month period is supported by a study suggesting increased frequency of neural tube defects in women impregnated during the first 3 months after cessation of OC use. Do not use progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding as a pregnancy test. 6. *Gall Bladder Disease:* Studies report increased risk of gall bladder disease in OC or estrogen users. In one study, an increased risk appeared after 2 years of use and doubled after 4-5 years. In another study, an increased risk was apparent between 6 and 12 months. 7. *Carbohydrate and Lipid Metabolic Effects:* Because a decrease in glucose tolerance has been observed in a significant percentage of patients on OCs, prediabetic and diabetic OC users should be carefully observed. An increase in triglycerides and total phospholipids has been observed in OC users but its clinical significance is unknown. 8. *Elevated Blood Pressure:* An increase in blood pressure has been reported with OC use. Hypertension may occur within a few months of beginning OCs. In the first year of use, incidence of hypertension may be no higher in OC users than in nonusers. Incidence in users increases with exposure and in the fifth year of use is 2.5-3 times that in the first year. Age is strongly correlated with hypertension in OC users. Women with a history of elevated blood pressure (hypertension), preexisting renal disease, history of toxemia or elevated blood pressure during pregnancy, familial tendency to hypertension or its consequences,* or history of excessive weight gain or fluid retention during the menstrual cycle may be more likely to develop elevated blood pressure when given OCs and should be monitored closely. Even though elevated blood pressure may remain within the "normal" range, closely watch elevations, particularly for women with other risk factors for cardiovascular disease or stroke. High blood pressure may or may not persist after OC discontinuation. 9. *Headache:* Discontinue OC and evaluate the cause of onset or exacerbation of migraine or development of a new pattern of headache which is recurrent, persistent, or severe. 10. *Bleeding Irregularities:* Breakthrough bleeding, spotting, and missed menses often make users discontinue OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, consider nonfunctional causes. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, use adequate diagnostic measures to rule out pregnancy or malignancy. If pathology has been excluded, time or another formulation may solve the problem. While potentially useful in minimizing menstrual irregularity, change to an OC with a higher estrogen content only if necessary since this may increase the risk of thromboembolic disease. Women with a history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may tend to remain anovulatory or to become amenorrheic after OC discontinuation. Women with these preexisting problems should be advised of this and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may occur in women without previous irregularities. A higher incidence of galactorrhea and of pituitary tumors (e.g., adenomas) has been associated with amenorrhea in former users compared with nonusers. One study reported a 16-fold increased incidence of pituitary prolactin-secreting tumors among patients with postpill amenorrhea when galactorrhea was present. 11. *Infertility:* There is evidence of impairment of fertility in women discontinuing OCs in comparison with other contraceptive methods, which appears to be independent of duration of use. While impairment diminishes with time, there is an appreciable difference in the results in nulliparous women for OC and other groups 30 months after discontinuation of birth control. For parous women the difference is not apparent 30 months after cessation of contraception. 12. *Ectopic Pregnancy:* Ectopic as well as intrauterine pregnancy may occur in OC failure. In progestogen-only OC failures, the ratio of ectopic to intrauterine pregnancies is higher than in nonusers, since the drugs are more effective in preventing intrauterine than ectopic pregnancies. 13. *Breast Feeding:* OCs in the postpartum period may interfere with lactation by decreasing quantity and quality of breast milk. A small fraction of OC hormonal agents has been identified in milk of mothers receiving OCs. Effects, if any, on the breast-fed child have not been determined. If feasible, defer OC use until the infant has been weaned.

Precautions *GENERAL* 1. Take a complete medical and family history before starting OCs. Pretreatment and periodic physical exams should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant lab tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical. 2. Under the influence of estrogen-progestogen preparations, preexisting uterine leiomyomata may enlarge. 3. Observe patients with a history of psychic depression and discontinue OCs if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the OC and use an alternate method of contraception to determine whether the symptom is drug related. 4. OCs may cause some fluid retention. Prescribe with caution, and only with careful monitoring, in patients with conditions that might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma or cardiac, hepatic or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence while using OCs. Discontinue OC if jaundice develops. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution in such patients. 7. OC users may have disturbances in normal tryptophan metabolism that may result in a relative pyridoxine deficiency. The clinical significance is unknown. 8. Serum folate levels may be depressed by OC use. Since the pregnant woman is predisposed to folate deficiency and incidence of folate deficiency increases with increasing gestation, if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and related complications. 9. Advise the pathologist of OC use when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs. For example: a. Increased sulfobromophthalein retention. b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability. c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered. d. Decreased pregnanediol excretion. e. Reduced response to metyrapone test. f. Increased phospholipids and triglycerides. g. Temporarily decreased glucose tolerance. 11. Contact lens wearers who develop visual changes or changes in lens tolerance should be assessed by an ophthalmologist and temporary or permanent cessation of wear considered. DRUG INTERACTIONS. OCs may be less effective and there may be increased breakthrough bleeding from interactions with rifampin, isoniazid, ampicillin, tetracycline, neomycin, penicillin V, chloramphenicol, sulfonamides, nitrofurantoin, barbiturates, phenytoin, primidone, analgesics, tranquilizers, antimigraine preparations, antihistamines, and griseofulvin. OCs may alter effectiveness of such other drugs as oral anticoagulants, anticonvulsants, tricyclic antidepressants, antihypertensive agents (e.g., guanethidine), vitamins, hypoglycemic agents, tranquilizers, hypnotic preparations, theophylline, and beta blockers. *CARCINOGENESIS* See Warnings. *PREGNANCY* Pregnancy category X. See Contraindications and Warnings. *NURSING MOTHERS* See Warnings.

Adverse Reactions An increased risk of the following serious adverse reactions has been associated with OC use (see Warnings): thrombophlebitis, thrombosis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, mesenteric thrombosis, liver tumors, cerebral hemorrhage, hypertension, gall bladder disease, congenital anomalies, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis, Raynaud's disease, arterial thromboembolism. The following adverse reactions have been reported in OC users and are believed to be drug related: bleeding irregularities (breakthrough bleeding, spotting, missed menses during treatment, amenorrhea after treatment), gastrointestinal symptoms (nausea, vomiting, bloating, abdominal cramps, colitis), dysmenorrhea, infertility after discontinuance of treatment, edema, chloasma or melasma which may persist after drug is discontinued, breast changes (tenderness, enlargement, and secretion), intolerance to contact lenses, changes in corneal curvature (steepening), change in weight (increase or decrease), change in cervical erosion and cervical secretion, possible diminution of lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, prolactin-secreting pituitary tumors, chilblains. The following adverse reactions have been reported in OC users and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of hair, erythema multiforme, erythema nodosum, hermorrhagic eruptions, vaginitis, porphyria, impaired renal function, malignant nephrosclerosis (hemolytic uremic syndrome), malignant hypertension, acute renal failure. **Information for the Patient** (See Patient Package Insert)

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7/26/88 A5160-1

Family Planning

Perspectives

Volume 20, Number 3, May/June 1988

Sex, Drugs and Alcohol Among U.S. Teenagers
Sources of Racial Differences in Nonmarital Fertility
Sexual Self-Concept and Teenagers' Contraceptive Use

Americans' Changing Contraceptive Practice

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PD-21-JA-4827-P-1(1-88)

LOESTRIN® Fe

(1.5 mg norethindrone acetate and 30 mcg ethinyl estradiol tablets, USP)

Before prescribing, please see full prescribing information. A Brief Summary follows:

INDICATIONS AND USAGE: Loestrin is indicated for the prevention of pregnancy in women who elect to use OCs as a method of contraception. **Dose-Related Risk of Thromboembolism from Oral Contraceptives:** Two studies have shown a positive association between the dose of estrogens in OCs and the risk of thromboembolism. For this reason, it is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The OC product prescribed for any given patient should be that product containing the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance. It is recommended that new acceptors of OCs be started on preparations containing 0.05 mg or less of estrogen. **CONTRAINDICATIONS:** OCs should not be used in women with any of the following conditions: 1. Thrombophlebitis or thromboembolic disorders; 2. A past history of deep vein thrombophlebitis or thromboembolic disorders; 3. Cerebral vascular or coronary artery disease; 4. Known or suspected carcinoma of the breast; 5. Known or suspected estrogen-dependent neoplasia; 6. Undiagnosed abnormal genital bleeding; 7. Known or suspected pregnancy (see Warning No. 5); 8. Benign or malignant liver tumor that developed during the use of OCs or other estrogen-containing products.

WARNINGS

> **Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.**
>
> The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems:* An increased risk of thromboembolic and thrombotic disease associated with the use of OCs is well established. Three principal studies in Great Britain and three in the US have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic. These studies estimate that users of OCs are 4 to 11 times more likely than nonusers to develop these diseases without evident cause. **Cerebrovascular Disorders:** In a collaborative American study of cerebrovascular disorders in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than in nonusers and the risk of thrombotic stroke was 4 to 9.5 times greater in users than in nonusers. **Myocardial Infarction:** An increased risk of MI associated with the use of OCs has been reported, confirming a previously suspected association. These studies, conducted in the UK, found, as expected, that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia), the higher the risk of developing MI, regardless of whether the patient was an OC user or not. OCs, however, were found to be a clear additional risk factor. In terms of relative risk, it is estimated that OC users who do not smoke (smoking is considered a major predisposing condition to MI) are about twice as likely to have a fatal MI as nonusers who do not smoke. OC users who are also smokers have about a 5-fold increased risk of fatal infarction compared with users who do not smoke, but about a 10- to 12-fold increased risk compared with nonusers who do not smoke. Furthermore, the amount of smoking is an important factor. In determining the importance of these relative risks, however, the baseline rates for various age groups must be given serious consideration. The importance of other predisposing conditions mentioned above in determining relative and absolute risks has not yet been quantified; it is quite likely that the same synergistic action exists, perhaps to a lesser extent. **Risk of Dose:** In an analysis of data derived from several national adverse reaction reporting systems, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in OCs. Preparations containing 100 mcg or more of estrogen were associated with a higher risk of thromboembolism than those containing 50 to 80 mcg of estrogen. Their analysis did suggest, however, that the quantity of estrogen may not be the sole factor involved. This finding has been confirmed in the US. **Persistence of Risk:** In confirmation of earlier reports, two studies have suggested that an increased risk may persist for as long as 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI. In addition, one prospective study suggested the persistence of risk for subarachnoid hemorrhage. **Estimate of Excess Mortality from Circulatory Diseases:** A large prospective study carried out in the UK estimated the mortality rate per 100,000 women per year from diseases of the circulatory system for users and nonusers of OCs according to age, smoking habits, and duration of use. The overall excess death rate annually from circulatory diseases for OC users was estimated to be 20 per 100,000 (ages 15 to 34 – 5/100,000; ages 35 to 44 – 33/100,000; ages 45 to 49 – 140/100,000), the risk being concentrated in older women, in those with a long duration of use, and in cigarette smokers. It was not possible, however, to examine the interrelationships of age, smoking, and duration of use, nor to compare the effects of continuous versus intermittent use. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all of these deaths occurred in women 35 or older. Until larger numbers of women under 35 with continuous use for 5 or more years are available, it is not possible to assess the magnitude of the relative risk for this younger age group. The available data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. The estimates of risk of death for each method include the combined risk of the contraceptive method (eg, thromboembolic and thrombotic disease in the case of OCs) plus the risk attributable to pregnancy or abortion in the event of method failure. This latter risk varies with the effectiveness of the contraceptive method. The study concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of OCs in women over 40 who smoke. The lowest mortality is associated with the condom or diaphragm backed up by early abortion. The risk of thromboembolic and thrombotic disease associated with OCs increases with age after approximately age 30 and, for MI, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preeclamptic toxemia and especially by cigarette smoking. The physician and the patient should be alert to the earliest manifestations of thromboembolic and thrombotic disorders (eg, thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). If any of these occurs or is suspected, the drug should be discontinued immediately. A 4- to 6-fold increased risk of postsurgical thromboembolic complications has been reported in OC users. If feasible, OCs should be discontinued at least 4 weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization. 2. *Ocular Lesions:* There have been reports of neuro-ocular lesions, such as optic neuritis or retinal thrombosis, associated with the use of OCs. Discontinue OC medication if there is unexplained, sudden or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma:* Long-term continuous administration of either natural or synthetic estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver. Certain synthetic progestogens, none currently contained in OCs, have been noted to increase the incidence of mammary nodules, benign and malignant, in dogs. In humans, three case control studies have reported an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women. One publication reported on the first 21 cases submitted by physicians to a registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the cases found in women without predisposing risk factors for adenocarcinoma of the endometrium (eg, irregular bleeding at the time OCs were first given, polycystic ovaries), nearly all occurred in women who had used a sequential OC. These products are no longer marketed. No evidence has been reported suggesting an increased risk of endometrial cancer in users of conventional-combination or progestogen-only OCs. Several studies have found no increase in breast cancer in women taking OCs or estrogens. One study, however, while also noting no overall increased risk of breast cancer in women treated with OCs, found an excess risk in the subgroups of OC users with documented benign breast disease. A reduced occurrence of benign breast tumors in users of OCs has been well documented. In summary, there is at present no confirmed evidence from human studies of an increased risk of cancer associated with OCs. Close clinical surveillance of all women taking OCs is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms should be monitored with particular care if they elect to use OCs. 4. *Hepatic Tumors:* Benign hepatic adenomas have been found to be associated with the use of OCs. One study showed that OC formulations with high hormonal potency were associated with a higher risk than lower potency formulations. Although benign, hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage. This has been reported in short-term as well as long-term users of OCs. Two studies relate risk with duration of use of the contraceptive, the risk being much greater after 4 or more years of OC use. While hepatic adenoma is a rare lesion, it should be considered in women presenting with abdominal pain and tenderness, abdominal mass or shock. A few cases of hepatocellular carcinoma have been reported in women taking OCs. The relationship of these drugs to this type of malignancy is not known at this time. 5. *Use in or Immediately Preceding Pregnancy; Birth Defects in Offspring, and Malignancy in Female Offspring:* The use of female sex hormones – both estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. It has been shown that females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been demonstrated to be of the order of 1 in 1,000 exposures or less. Although there is no evidence at the present time that OCs further enhance the risk of developing this type of malignancy, such patients should be monitored with particular care if they elect to use OCs. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether this condition is a precursor of vaginal malignancy. Male children so exposed may develop abnormalities of the urogenital tract. Although similar data are not available with the use of other estrogens, it cannot be presumed that they would not induce similar changes. An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of sex hormones, including OCs, in pregnancy. One case control study has estimated a 4.7-fold increase in risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 in 1,000 live births. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. It is recommended that for any patient who has missed two consecutive periods, pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule, the possibility of pregnancy should be considered at the time of the first missed period, and further use of OCs should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuation of the pregnancy should be discussed in the light of these risks. It is also recommended that women who discontinue OCs with the intent of becoming pregnant use an alternate form of contraception for a period of time before attempting to conceive. Many clinicians recommend 3 months although no precise information is available on which to base this recommendation. The administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy. 6. *Gallbladder Disease:* Studies report an increased risk of surgically confirmed gallbladder disease in users of OCs and estrogens. In one study, an increased risk appeared after 2 years of use and doubled after 4 or 5 years of use. In one of the other studies, an increased risk was apparent between 6 and 12 months of use. 7. *Carbohydrate and Lipid Metabolic Effects:* A decrease in glucose tolerance has been observed in a significant percentage of patients on OCs. For this reason, prediabetic and diabetic patients should be carefully observed while receiving OCs. An increase in triglycerides and total phospholipids has been observed in patients receiving OCs. The clinical significance of this finding remains to be defined. 8. *Elevated Blood Pressure:* An increase in blood pressure has been reported in patients receiving OCs. In some women, hypertension may occur within a few months of beginning OC use. In the first year of use, the prevalence of women with hypertension is low in users and may be no higher than that of a comparable group of nonusers. The prevalence in users increases, however, with longer exposure, and in the fifth year of use is two and a half to three times the reported prevalence in the first year. Age is also strongly correlated with the development of hypertension in OC users. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure when given OCs. Hypertension that develops as a result of taking OCs usually returns to normal after discontinuing the drug. 9. *Headache:* The onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of OCs and evaluation of the cause. 10. *Bleeding Irregularities:* Breakthrough bleeding, spotting, and amenorrhea are frequent reasons for patients discontinuing OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, nonfunctional causes should be borne in mind. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy. If pathology has been excluded, time or a change to another formulation may solve the problem. Changing to an OC with a higher estrogen content, while potentially useful in minimizing menstrual irregularity, should be done only if necessary since this may increase the risk of thromboembolic disease. Women with a past history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of OCs. Women with these preexisting problems should be advised of this possibility and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may also occur in women without previous irregularities. 11. *Ectopic Pregnancy:* Ectopic as well as intrauterine pregnancy may occur in contraceptive failures. 12. *Breast-Feeding:* OCs given in the postpartum period may interfere with lactation. There may be a decrease in the quantity and quality of the breast milk. Furthermore, a small fraction of the hormonal agents in OCs has been identified in the milk of mothers receiving these drugs. The effects, if any, on the breast-fed child have not been determined. If feasible, the use of OCs should be deferred until the infant has been weaned. **PRECAUTIONS: General:** 1. A complete medical and family history should be taken prior to the initiation of OCs. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical examination. 2. Under the influence of estrogen-progestogen preparations preexisting uterine leiomyomata may increase in size. 3. Patients with a history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the medication and use an alternative method of contraception in an attempt to determine whether the symptom is drug related. 4. OCs may cause some degree of fluid retention. They should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma, or cardiac or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence of jaundice while receiving OC therapy. If jaundice develops in any patient receiving such drugs, the medication should be discontinued. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution. 7. OC users may have disturbances in normal tryptophan metabolism which may result in a relative pyridoxine deficiency. The clinical significance of this is undetermined. 8. Serum folate levels may be depressed by OC therapy. Since the pregnant woman is predisposed to the development of folate deficiency and the incidence of folate deficiency increases with increasing gestation, it is possible that if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and complications attributed to this deficiency. 9. The pathologist should be advised of OC therapy when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs: a. Increased sulfobromophthalein retention; b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability; c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG, free T4 concentration is unaltered; d. Decreased pregnanediol excretion; e. Reduced response to metyrapone test. **INFORMATION FOR THE PATIENT:** See Patient Labeling. **DRUG INTERACTIONS:** Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin. **CARCINOGENESIS, PREGNANCY, NURSING MOTHERS:** See Contraindications and Warnings. **ADVERSE REACTIONS:** An increased risk of the following serious adverse reactions has been associated with the use of OCs: Thrombophlebitis, pulmonary embolism; coronary thrombosis; cerebral thrombosis; cerebral hemorrhage; hypertension; gallbladder disease; benign hepatomas; congenital anomalies. There is evidence of an association between the following conditions and the use of OCs, although additional confirmatory studies are needed: Mesenteric thrombosis; neuro-ocular lesions, eg, retinal thrombosis and optic neuritis. The following adverse reactions have been reported in patients receiving OCs and are believed to be drug related: Nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10 percent or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally: Gastrointestinal symptoms (such as abdominal cramps and bloating); breakthrough bleeding; spotting; change in menstrual flow; dysmenorrhea; amenorrhea during and after treatment; temporary infertility after discontinuance of treatment; edema; chloasma or melasma which may persist; breast changes: tenderness, enlargement and secretion; change in weight (increase or decrease); change in cervical erosion and cervical secretion; possible diminution in lactation when given immediately postpartum; cholestatic jaundice; migraine; increase in size of uterine leiomyomata; rash (allergic); mental depression; reduced tolerance to carbohydrates; vaginal candidiasis; change in corneal curvature (steepening); intolerance to contact lenses. The following adverse reactions have been reported in users of OCs, and the association has been neither confirmed nor refuted: Premenstrual-like syndrome; cataracts; changes in libido; chorea; changes in appetite; cystitis-like syndrome; headache; nervousness; dizziness; hirsutism; loss of scalp hair; erythema multiforme; erythema nodosum; hemorrhagic eruption; vaginitis; porphyria; hemolytic uremic syndrome. **ACUTE OVERDOSE:** Serious effects have not been reported following acute ingestion of large doses of OCs by young children. Overdosage may cause nausea, and withdrawal bleeding may occur in females. **HOW SUPPLIED:** Loestrin **21** 1/20 is available in compacts each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1/20 is available in compacts each containing 21 white tablets and 7 brown tablets. Each white tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills. Loestrin **21** 1.5/30 is available in compacts each containing 21 tablets. Each tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Available in packages of five compacts and packages of five refills. Loestrin **Fe** 1.5/30 is available in compacts each containing 21 green tablets and 7 brown tablets. Each green tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate, USP. Available in packages of five compacts and packages of five refills.

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Morris Plains, New Jersey 07950

Family Planning

Perspectives

ISSN 0014-7354
Volume 20, Number 3, May/June 1988

Published bimonthly by
The Alan Guttmacher Institute.
at 111 Fifth Avenue
New York, N.Y. 10003

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Inquiries about advertising should be addressed to Nicholas Publishing,
139 Harristown Rd.
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Tel. 201-670-7755

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Second-class postage paid at New York, N.Y., and additional mailing offices.
Postmaster: Send address changes to Family Planning Perspectives,
111 Fifth Avenue, New York, N.Y. 10003.

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BROADENING THE RANGE OF EFFECTIVE CONTRACEPTIVE CHOICES…

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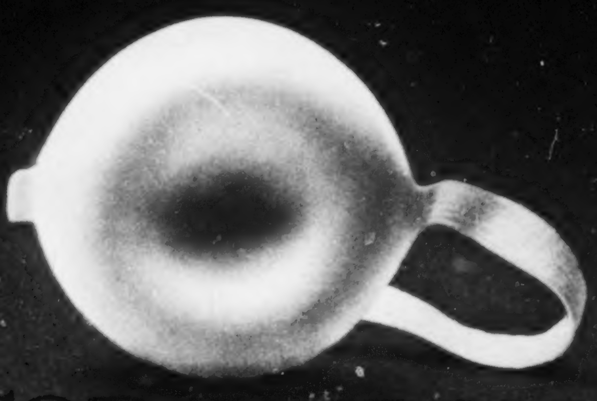

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- Unique combination of benefits may enhance patient motivation to use contraception
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References: 1. McClure DA, Edelman DA: Worldwide method effectiveness of the Today® vaginal contraceptive sponge. *Adv Contracept* 1:305-311, 1985. 2. *Today® Vaginal Contraceptive Sponge: A Technical Review:* Irvine, Calif, VLI Corporation, 1986. 3. North BB, Vorhauer BW: Use of the Today® contraceptive sponge in the United States. *Int J Fertil* 30:81-84, 1985.

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UPDATE

A Female Condom?

For years there has been talk about developing a pill for men, but researchers in England have come up with a different twist—a condom for women. The device, called Femshield, resembles a small plastic bag and is made of polyurethane, which is stronger and lighter than the latex used to make the condom. Femshield is said to be as easy to insert as a tampon: A large plastic ring at the open end of Femshield holds the device outside the user's vagina while a small ring at the closed end is inserted into the vagina and placed at the cervix. Femshield can be inserted well before intercourse, and must be used with a lubricant applied to the inside to prevent penile irritation. Men have found it more comfortable than the condom because it does not fit as tightly, and it is expected to be more reliable than the condom as well. Efficacy trials involving 200 couples recently began at the Margaret Pyke Centre in London; in addition, the World Health Organization will shortly begin a study of Femshield, and a U.S. company called Wisconsin Pharmacal intends to apply to the Food and Drug Administration (FDA) for approval of a similar device sometime in 1988.[1]

1. Marketing Communications Limited, press kit, London, 1988; "British 'Femshield' May Soon Enter Full-Scale Efficacy Trials," *Contraceptive Technology Update*, 9:21, 1988; and "Female Condom May Soon Appear on Markets in U.S., Britain," *Contraceptive Technology Update*, 9:75, 1988.

Transdermal Approach

Family Health International (FHI) is collaborating with Cygnus Research Corporation of California on the development of a transdermal contraceptive patch similar to a patch successfully marketed recently for estrogen replacement therapy.[1] The small pad would slowly release hormones through the skin and into the circulatory system; it is expected to remain effective for 8–9 days, but would be worn for just seven and then replaced. Transdermal contraceptive patches would have two important advantages over oral contraceptives: First, because the hormones they deliver would bypass the digestive system, and therefore the liver, the metabolic side effects of the hormones would be minimized; second, because monthly use would require a woman to place only 3–4 pads (depending on whether a placebo pad is used at the end of a cycle) instead of taking 21–28 pills, use-effectiveness would probably be improved because the woman wouldn't have to remember to take a daily pill.

FHI and Cygnus are now approaching the end of feasibility trials, searching for a progestin that could be used with such a delivery system, according to Robin G. Foldesy, associate director of clinical trials at FHI. Although the research is in its early stages, FHI hopes to begin clinical trials by the end of the year.

1. "Cygnus' Contraceptive Patch," *Scrip*, Feb. 25, 1988, p. 25; and R. G. Foldesy, Family Health International, personal communication, May 25, 1988.

RU 486 in China

Roussel Uclaf, the French developer of the progesterone blocker known as mifepristone (but perhaps better known as RU 486), has applied for regulatory approval of the drug in the People's Republic of China. In clinical trials under way in China for nearly two years, mifepristone has been tested as an early abortifacient both alone and in combination with a prostaglandin. So far, studies have shown that the rate of successful abortions in the latter instance is 92 percent.[1]

1. "Mifepristone Awaiting Approval in China," *Scrip*, Mar. 25, 1988, p. 28.

New Pills

A new generation of progestins are being developed, largely in Europe, and several of them have started to appear in new oral contraceptive formulations. The new hormones—norgestimate, jointly developed by the Ortho Pharmaceutical Corporation and Cilag AG; gestoden, developed by Schering AG; and desogestrel, developed by Organon International BV—are believed to have minimal effects on lipid metabolism. One recently introduced oral contraceptive—Organon's Mercilon—combines 150 mcg of desogestrel with 20 mcg of ethinyl estradiol. The new formulation is recommended for older women with established menstrual cycles and for women who tolerate estrogen poorly; no other combined pill contains less estrogen than Mercilon. Meanwhile, the British Committee on Safety of Medicines (England's equivalent of the FDA) has given Wyeth Laboratories the go-ahead to market an oral contraceptive containing 30 mcg of ethinyl estradiol and 75 mcg of gestoden, which is three times more effective than levonorgestrel. Ortho has applied for FDA approval of norgestimate, but how long it will be before this progestin—or any of the other new products—becomes available in the United States remains unclear.

1. "New Progestins Focus on Eliminating Side Effects," Contraceptive Technology Update, 9:50, 1988; "New Oral Contraceptive," *IPPF Open File*, Mar. 11, 1988, p. 19; and "Organon's New Low-Œstrogen OC," *Scrip*, Mar. 24, 1988, p. 25.

Thumbs Down on High-Dose Pills

On January 15, 1988, the FDA's Fertility and Maternal Health Drugs Advisory Committee recommended that oral contraceptives containing more than 50 mcg of estrogen be removed from the market.[1] As a result, the pharmaceutical companies still marketing these preparations have agreed to cease distribution by October 1988.[2] Because the higher dose pills are believed to pose a higher risk of thromboembolic disease than do pills containing less estrogen and because they have not been demonstrated to be any more effective, the FDA judged them to have insufficiently unique clinical value. In 1986, about 400,000 U.S.

women were using one of the nine brands of higher dose pills on the market. These preparations ranged in estrogen dosage from 60 to 150 mcg of mestranol, and represented approximately four percent of the pill prescriptions filled that year.

1. "FDA Committee Recommendation: High-Dose OCs Should Be Discontinued," *Outlook*, Mar. 1988, p. 9; and "High-Estrogen Birth Control Pills: A Proposed Ban on an Archaic and Dangerous Product," *Health Letter*, Vol. 4, No. 3, 1988, p. 5.

2. Enid Galliers, FDA, personal communication, June 30, 1988.

STD Worries on the Wane?

Have Americans become less concerned about sexually transmitted diseases (STDs)? A recent study examined the attitudes and practices of 204 sexually active teenagers (three-quarters of them female) who were attending an adolescent health clinic in San Francisco; they were surveyed twice during the period 1984–1986, one year apart, on their knowledge about STDs and about condoms. The results? At the first survey, while the teenagers were aware that condoms can prevent infection with STDs and were very likely to believe that condom use is important, the girls expressed little intention to use condoms and were uncertain about teenage boys' willingness to do so. The boys were much more likely to report that they intended to use condoms, as well as to believe that their partners would want them to do so. However, by the time of the follow-up survey, both the boys and the girls had grown less likely to intend to use a condom or ask their partner to use one. Only two percent of the girls and eight percent of the boys said that they actually had used condoms every time they had had intercourse during the year between surveys.[1]

Schmid Laboratories, a condom manufacturer, conducted a pair of surveys in 1987 among 1,400 men and women 18 or older; the results showed that by October 1987, 52 percent were "not at all concerned" about contracting AIDS (up from 44 percent in January). Between the two surveys, rates of condom use declined among those most likely to be sexually active outside a monogamous relationship, 18–24-year-olds; the rate dropped from 32 percent to 27 percent among the men and from 16 to 13 percent among the women.[2]

1. S. M. Kegeles, N. E. Adler and C. E. Irwin, Jr., "Sexually Active Adolescents and Condoms: Changes over One Year in Knowledge, Attitudes and Use," *American Journal of Public Health*, **78**:460, 1988.

2. J. Price, "Condom Use, Fear of AIDS on Decline," *Washington Times*, Jan. 28, 1988, p. A6.

Bring On the 380A

After two years in which a hormone-releasing device has been the only IUD available to their patients, American physicians appear eager for a change. Seventy-five percent of obstetrician-gynecologists in a recent survey said that they would consider prescribing ParaGard,[1] the copper IUD that was recently okayed by the FDA for distribution in the United States.[2] The survey was undertaken for The Population Council, the developers of this IUD, and went out to nearly all of the 22,000 ob-gyns who practice in the United States; responses were received from 36 percent. Ten percent of the physicians said that they had patients who used IUDs.

Meanwhile, GynoPharma, distributor of ParaGard, recently announced that the device would soon be available to physicians for approximately $140 each.[3] Nonprofit organizations such as the Planned Parenthood Federation of America (PPFA) will receive it for at least 50 percent less, as GynoPharma's agreement with The Population Council stipulated.

1. "New IUD Gets MD Approval—Survey," *American Medical News*, May 20, 1988, p. 10.

2. M. Klitsch, "The Return of the IUD," *Family Planning Perspectives*, **20**:19, 1988.

3. GynoPharma, ParaGard Model T380A information folder, Somerville, N.J., May 1988.

Condoms vs. HIV

A recent experiment confirms that condoms do indeed appear to block passage of human immunodeficiency virus (HIV), which causes AIDS, and that when condoms are used with a spermicide containing nonoxynol-9, the spermicide appears to provide protection should the condom rupture.[1] Thirty condoms—20 of them treated with nonoxynol-9—were mounted on hollow dildos and were then inserted into cylinders containing a liquid culture medium. After HIV inoculum was placed in each condom tip via a hole in the dildo, the dildo was pumped up and down in the cylinder and then deliberately ruptured. Before they broke, none of the 30 condoms allowed the HIV to enter the surrounding medium; after rupture, HIV was detected around seven of the 10 that had no spermicide, but around none of the 20 with nonoxynol-9. The investigators conclude that "although no in vitro model can adequately simulate sexual intercourse or the physical and chemical conditions in the vaginal and anorectal areas, there is little doubt that if condoms are kept in place and not damaged during intercourse, they will prevent most transmission of HIV."

1. C. A. M. Rietmeijer et al., "Condoms as Physical and Chemical Barriers Against Human Immunodeficiency Virus," *Journal of the American Medical Association*, **259**:1851, 1988.

Rising Tide of Syphilis

From January through mid-November 1987, the number of reported cases of infectious syphilis in the United States rose 32 percent from the comparable period in 1986, reversing the downward trend observed over the previous four years. The annual syphilis infection rate projected by the Centers for Disease Control for 1987 is 14.7 cases per 100,000 population, the highest since 1950. Twenty-seven states and New York City reported growth in the number of syphilis cases, including increases of 75 percent among women and 77 percent among heterosexual men. Only among homosexual or bisexual men did the number of syphilis cases decline. According to the federal researchers, cases of congenital syphilis can be expected to increase as a result of this trend. The climbing rate of syphilis infection may also affect the ease with which human immunodeficiency virus is contracted, since genital ulcer diseases such as primary syphilis have been implicated in the spread of HIV.[1]

1. "Continuing Increase in Infectious Syphilis—United States," *Morbidity and Mortality Weekly Report*, **37**:35, 1988.

Census Question Rescued

Just before the April 1, 1988, deadline, the federal government's Office of Management and Budget (OMB) dropped its demand that the Census Bureau excise about one-third of the questions slated for inclusion in the 1990 census "long" form—including the one question on fertility, which is essential for demographers and other social scientists. The OMB had argued that deletion of these questions would make the census form less burdensome; the current long form requires 30–45 minutes to complete. Questions on marital history, number of weeks spent looking for work and details regarding housing (such as the number of stories in the respondent's building, whether there is air conditioning and heating equipment and whether there is an elevator) have been eliminated, but one of the most important threatened questions (on children ever born) was retained.[1]

1. "Countdown to 1990 Census," *Population Today*, May 1988, p. 4; and "Census Questions to Be Retained," *Science*, **240**:140, 1988.

U.S. Women's Contraceptive Attitudes and Practice: How Have They Changed in the 1980s?

By Jacqueline Darroch Forrest and Richard R. Fordyce

Summary

Between 1982 and 1987, favorable opinion of the pill increased steadily among American women (from 65 to 76 percent), and favorable opinion of the condom rose sharply (from 38 to 60 percent). Approval of the IUD dropped during the period (from 26 percent to 19 percent).

During the five years, the proportion of married women aged 18–44 who were exposed to the risk of unintended pregnancy remained the same (78 percent), but the proportion among unmarried women rose significantly (from 64 percent to 69 percent). This change was primarily the result of an increase—from 68 percent to 76 percent—in the proportion of never-married women who had ever had intercourse.

The overall level of contraceptive use among 18–44-year-olds who were exposed to risk remained stable over the period, at about 93 percent, but use of the most effective methods (sterilization, pill and IUD) went up, from 68 percent to 71 percent. All of the net increase in effective-method use, however, was limited to married women, among whom reliance on both sterilization and the pill increased (from 46 to 51 percent and from 17 to 22 percent, respectively). Pill use also rose among unmarried women (from 43 to 48 percent), but there was no change in the level of sterilization. The prevalence of IUD use declined among both married and unmarried women (to three percent in each case). Condom use remained steady among married women, at about 15 percent, but among the unmarried it increased markedly, from nine to 16 percent.

Despite the increases in use of the pill, sterilization and condom that occurred during the period, nonuse remains a point of concern. Eight percent of all women of reproductive age at risk of pregnancy were using no contraceptive method in 1987, and the level was even higher—13 percent—among unmarried women.

Background

Interest in the levels and patterns of sexual activity and contraceptive use has increased in recent years, probably as a result of concerns about both the high levels of unintended pregnancy and abortion in the United States and the rising incidence of sexually transmitted diseases, including acquired immunodeficiency syndrome (AIDS). Information about sexual and contraceptive behavior is needed to plan new educational and medical efforts and to monitor the effects of those under way. Although a number of extensive national surveys covering sexual and contraceptive behavior are now in the field or are being planned,* there have been no such studies in the past several years that can be used to track changes in behavior. Assumptions abound that levels of sexual activity and numbers of partners have decreased drastically and reliance on condoms has increased, but the only evidence about possible changes in such behavior has come from small studies, often of specialized populations,[1] and these provide no clear indication of what may be happening in the population as a whole.

Until now, the latest available national data about sexual activity and contraceptive use have pertained to 1982. Market Facts collected basic information for the Ortho Pharmaceutical Corporation in the spring of 1982, and findings were published in 1983.[2] The National Center for Health Statistics gathered more detailed information between August 1982 and February 1983 in the third National Survey of Family Growth (NSFG Cycle III). NSFG data on exposure to the risk of unintended pregnancy and on contraceptive use were published in 1984.[3] The long interval since the last cycle of the NSFG and the lack of timely national data have been serious drawbacks at a time when we need to know whether and how behavior is changing.

In this article, we present new data made available by Ortho from the nationwide sample survey that Market Facts conducted for Ortho in 1987.

Methodology

The Ortho Birth Control Studies have been carried out annually for almost two decades, in essentially the same format and with the same methodology. They originally were restricted to married women aged 18–44, but unmarried women aged 18–44 have been included for more than a decade, and 15–17-year-olds have been surveyed since 1985. The questionnaire is short and self-administered, and covers a variety of topics. It contains one question on contraceptive use for all women† and a

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*For example, Cycle IV of the National Survey of Family Growth, conducted by the National Center for Health Statistics, and the National Survey of Young Men, conducted by Brandeis University and The Urban Institute, have been fielded in 1988. Two others are being developed by the National Opinion Research Center and the University of North Carolina under planning contracts from the National Institute of Child Health and Human Development.

†Respondents are asked, "What method or methods of birth control, if any, are you currently using? ('x' as many as apply)." A detailed listing of methods is provided, as well as the responses "None/do not use any method" and "Hysterectomy/menopause" (the latter option is not offered to 15–17-year-old respondents, none of whom are assumed to be in the category). Married women are also given the possible responses "None, I'm pregnant" and "None, I'm trying to get pregnant."

question for women using no method,[*] from which it is possible to calculate the proportion of all respondents who have had intercourse. The categories "current use," "infrequent sex" and "infertile" computed from these data are based on the respondents' definitions of what those categories mean.

In Cycle III of the NSFG, which involved a long, personal interview, women were asked to identify the contraceptive methods that they had used since their last pregnancy or (for those who had never been pregnant) since first intercourse. For each method, they were asked when they started using it, whether they still used it and, if they did not, when they had stopped. Current use was based on the method or methods that a respondent said she was still using, with no limit on the time frame of that use. Thus, current use was probably quite similarly defined in the NSFG and Ortho surveys. Women participating in the NSFG were asked several more detailed questions about their reliance on sterilization and about their nonuse of contraceptives than were respondents to the Ortho study. Sterilizations reported in the NSFG were considered noncontraceptive unless the respondent said that their purpose included contraception, or unless the respondent was not currently married and her partner had had a vasectomy. Nonusers who had not had intercourse within the previous three months have been categorized separately by many analysts as not being at risk of pregnancy.[4] In addition to the items on sterilization and nonuse, the NSFG also contained detailed questions about infertility and pregnancy intentions.

Tabulations of method use from the NSFG usually have been edited so as to assign women reporting use of more than one contraceptive to only one method category. The published analysis of the 1982 Ortho Birth Control Study followed this precedent, but used a slightly different hierarchy.[5] In the 1982 NSFG, women using contraceptives reported an average of 1.09 methods. They were assigned to one method only, in the following order of priority: female sterilization, male sterilization, pill, IUD, diaphragm, condom, foam, periodic abstinence, withdrawal, douche, other.[6] Respondents to the 1982 Ortho survey who were using a method reported an average of 1.13 methods; users were assigned to only one method according to the following order of priority: female sterilization, male sterilization, pill, IUD, condom, spermicide, diaphragm, withdrawal, periodic abstinence, other.[7]

Since the 1982 Ortho study did not include women aged 15–17, estimates were calculated for them based on the survey data for 18–19-year-olds and the relationship between the characteristics of 15–17-year-olds and those of 18–19 year olds in the 1976 and 1979 Johns Hopkins Surveys of Young Women.[8]

Table 1 shows that in spite of the differences in questions, survey design and method hierarchies between the two surveys in 1982, their results were quite similar. Nonetheless, time trends are better examined by comparing the 1982 and 1987 Ortho surveys than by comparing the 1987 Ortho survey with the 1982 NSFG, because of the differences between the latter two.

For the 1987 Ortho survey, printed questionnaires were mailed in April of that year to a national sample of 10,100 women aged 18–44 who had been selected from panels of households established by Market Facts. In participating households in which an unmarried recipient was a daughter of the head of the household,[†] the questionnaire was sent to the head, with the request that he or she forward it to the designated household member. The overall response rate was 74 percent; it was higher for married than for unmarried women (85 percent vs. 60 percent). There were 4,907 usable responses from currently married women and 2,465 from unmarried women.

Questionnaires were also mailed to 6,000 women aged 15–17; this sample was made relatively large in order to provide estimates with a degree of accuracy similar to that for the older women in spite of an expected lower response rate. Here, too, the head of the household was asked to pass the questionnaire on to the designated household member. Completed questionnaires were received from 51 percent (3,060) of the 15–17-year-olds.

Estimates based on respondents aged 15–17, on unmarried women aged 18–44 and on never-married women aged 18–44 have 95 percent confidence intervals of plus or minus two percentage points or less, while estimates based on married women or all women have intervals no greater than plus or minus one point.

Panel surveys such as this one are likely to underrepresent lower income women, blacks and members of other minority groups.[9] There are no clear indications that lower income women are underrepresented in the Ortho survey. The median household income of married respondents in 1987 was $28,495, somewhat lower than the 1986 national median of $32,805 among households with married couples, even though married women aged 18–44 have higher household incomes, on average, than older couples included in the national figures.[10] Similarly, the median personal income of unmarried respondents aged 18–44 ($11,671) was less than the national median for all female-headed households ($13,647), even though many of the unmarried women surveyed were not independent householders. Nonwhite women are, however, underrepresented in the 1987 survey: They accounted for eight percent of all respondents, compared with 17 percent of U.S. women aged 15–44.

Table 1. Percentage distribution of U.S. women aged 15–44, by contraceptive-use status, 1982 Ortho Birth Control Study and 1982 National Survey of Family Growth (NSFG)

Status	Ortho (N=6,723)	NSFG (N=7,969)
Using a method		
Sterilization	21	18
Female	12	12
Male	9	6
Pill	18	16
IUD	4	4
Condom	8	7
Spermicide	3	2
Diaphragm	3	5
Withdrawal	2	1
Periodic abstinence	1	2
Douche and others	*	1
Not using		
At risk	6	7
Never had sex	14	14
Infrequent sex	5	5
Infertile†	7	9
Pregnant/seeking pregnancy	8	9
Total	100	100

*Less than 0.5 percent.

†In this table, category includes those who had had hysterectomies (unless, in the NSFG, the operations were reported as contraceptive in intent) and those who had entered menopause.

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[*] Those who check "None/do not use any method" are asked, "Which one of the following statements best describes why you are not currently using a birth control method? (one box only)." The detailed list of possible responses includes "I have intercourse so infrequently that I don't need a birth control method," "I am infertile," "My partner/husband is infertile" and "Other (specify)." Unmarried women and those under age 18 also have the options "I have never had intercourse," "I am pregnant" and "I don't mind getting pregnant." In this article, the category "infrequent sex" is based on the response mentioned above, along with the replies of a few women who responded that they use no method because they are widowed or divorced. The category "infertile" includes both those who are infertile and those whose partners are. The group classified here as "pregnant/trying" includes those who are pregnant or seeking pregnancy and those who say they would not mind getting pregnant.

[†] In this study, unmarried women included those who had never married as well as those who were separated, divorced or widowed.

Table 2. Percentage of U.S. women aged 15–44 reporting a favorable opinion* about specific contraceptive methods, and percentage currently using each method who are very or somewhat satisfied with it,† by marital status, 1987 Ortho Birth Control Study

Method	All women			Current users		
	Total	Married	Unmarried	Total	Married	Unmarried
Sterilization						
Female	57	69	44	89	89	85
Male	61	73	64	87	86	93
Pill	77	76	77	95	94	96
IUD	19	20	16	97	96	97
Condom	61	62	59	84	83	86
Diaphragm	32	34	29	86	86	86
Foam	20	24	16	89	90	83
Sponge	20	18	21	85	88	83
Periodic abstinence	18	22	13	81	82	81
Withdrawal	10	11	9	78	78	77

*As opposed to holding an unfavorable opinion or no opinion.

†As opposed to being somewhat or very dissatisfied with the method or giving no answer.

Except in the case of the information shown in Table 1,* the data presented here for both 1982 and 1987 have been weighted by age, marital status and region of the country in order to equal national distributions. There is insufficient information available at this time to permit further examination of the possible usefulness of weighting the data by race or income.

Attitudes Toward Contraceptives

Women and men differ in their opinions about the various contraceptive methods available to them. Opinions may change with a person's age,[11] type of relationship, number of children and plans for future children, and they may change on the basis of a person's experience using a method. Table 2 presents information from 1987 on opinions about methods among married and unmarried women aged 15–44 and among those who were currently using each method.†

Among women in general, at least 57 percent gave favorable ratings to four methods—oral contraceptives, condoms, vasectomy and female sterilization.‡ No other method was rated favorably by more than 34 percent of the women, in either marital-status group. The overwhelming majority of users (more than three-quarters) rated their own method as satisfactory, however. This finding probably reflects users' selection of a method with which they were comfortable.

The pill received by far the most favorable rating from respondents, whether married or unmarried; three-quarters of all women said that they had a favorable opinion of it, and 95 percent of pill users were satisfied with it. Approximately six women in 10 had a favorable opinion of contraceptive sterilization, with a slightly higher proportion feeling positively about vasectomy than about female sterilization. Not surprisingly, married women were more likely to have a favorable opinion of sterilization than were the unmarried. (Unmarried women are, on average, not only younger but also less likely to have had children or to be considering a permanent method.)

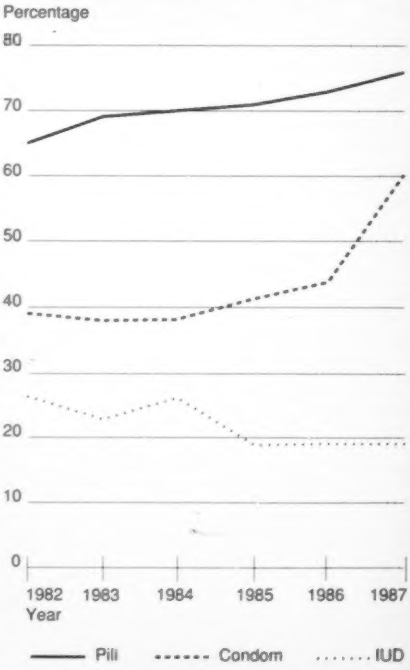
Just under nine in 10 women who depended on sterilization in 1987 were satisfied with it, a proportion lower than those of pill and IUD users reporting satisfaction with their methods. Data from the 1982 NSFG showed that one woman in 10 relying on contraceptive sterilization (of herself or her partner) said that she and her partner wished to have the procedure reversed.[12]

The condom was rated favorably by six out of 10 women. The proportion was slightly higher among married women than among unmarried women (62 percent compared with 59 percent). This small difference runs contrary to expectations, since much of the recent publicity surrounding the condom has focused on its role in helping to prevent infection with sexually transmitted diseases (including the AIDS virus) among those who are not in a monogamous relationship. The degree of satisfaction with the condom was only slightly greater among unmarried users (86 percent) than among married users (83 percent).

One-third of all women reported holding a favorable opinion of the diaphragm, and one-fifth had a positive opinion of foam and the contraceptive sponge. For the diaphragm and foam, these proportions were higher among married women than among unmarried women, but unmarried women were slightly more favorably disposed toward the sponge than were married women. Depending on marital status, 83–90 percent of users of these methods were satisfied with them.

Almost one in five women in the general population held favorable opinions about the IUD and about periodic absti-

Figure 1. Percentage of U.S. women aged 18–44 holding favorable opinions of the pill, the IUD and the condom, 1982–1987 Ortho Birth Control Studies



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*The 1982 Ortho data on risk and contraceptive use (but not those on attitudes toward contraceptive methods) presented by Forrest and Henshaw (see reference 2) and shown here in Table 1 were weighted by age, marital status and race.

†The marital-status categories reflect differences both in types of relationships and in age. In the United States in 1986, 64 percent of married women were 30 or older, while 72 percent of unmarried women were under 30. Never-married women accounted for 74 percent of all unmarried women; the remainder were separated, divorced or widowed.

‡All respondents were given a list of methods and asked, "What is your opinion of each of the following methods of contraception?" Possible responses were "Favorable," "Unfavorable" and "No opinion." Women were also asked, "In general, how satisfied are you with the method of birth control that you are currently using?" Their possible responses were "Very satisfied," "Somewhat satisfied," "Somewhat dissatisfied" and "Very dissatisfied."

nence. In both cases, but especially for periodic abstinence, married women were more likely to be favorable. While eight in 10 users of periodic abstinence were satisfied with it, almost all of the IUD users said that they were satisfied with their method. Withdrawal was rated favorably by only one in 10 women, with little difference by marital status. Seventy-eight percent of users of this method were satisfied with it, the lowest level of satisfaction reported for any of these methods.

Table 3. Percentage distribution of U.S. women, by exposure to the risk of unintended pregnancy and reasons for nonexposure, according to age-group and marital status, 1982 and 1987 Ortho Birth Control Studies

Exposure	1987					1982		
	15–44	15–17	18–44			18–44		
			Total	Married	Unmarried	Total	Married	Unmarried
No. (in millions)	57.4	5.4	52.0	31.7	20.3	48.4	28.4	20.0
Exposed	**72**	**39**	**74**	**78**	**69**	**72**	**78**	**64**
Not exposed	**28**	**61**	**26**	**22**	**31**	**28**	**22**	**36**
Never had sex	11	55	7	0	15	9	0	21
Infrequent sex	4	3	4	1	9	4	1	8
Hysterectomized/ menopausal	5	0	6	8	2	5	7	3
Infertile	2	*	3	2	4	2	3	2
Pregnant or seeking pregnancy	6	2	7	11	1	8	11	2
Total	100	100	100	100	100	100	100	100

*Less than 0.5 percent.

Time Trends in Attitudes

In the case of tubal sterilization, vasectomy, foam, the diaphragm, periodic abstinence and withdrawal, the level of favorable opinion changed little from 1982 to 1987. (The same is true for the contraceptive sponge between 1984, the first year in which it was included in the survey, and 1987.) The proportions of women with favorable opinions of each of these methods differed by no more than four percentage points.

In contrast, attitudes toward the pill, condom and IUD changed a great deal, as is shown in Figure 1. Between 1982 and 1987, the proportion of women aged 18–44[*] who reported a favorable opinion of oral contraceptives increased steadily, from 65 percent to 76 percent. This trend represents a continuation of the steady rise in approval of the pill seen since the late 1970s.[13]

The pattern of approval for the condom has been quite different. Favorable opinion of this method was fairly stable from 1977 to 1982, at about 40 percent,[14] and fluctuated between 38 percent and 39 percent between 1982 and 1984. The proportion then rose steeply, from 38 percent in 1984 to 60 percent in 1987. Although the increase began in 1985, most of it—16 of 22 percentage points—occurred between 1986 and 1987. This undoubtedly reflects the heightened concern about AIDS and the growing awareness that the condom decreases the likelihood of sexual transmission of the AIDS virus.

During the same period, the proportion of women reporting a favorable opinion of the IUD decreased—from 26 percent in 1982 to 19 percent in 1987. This change continued a pattern of declining favorable opinion among all women of reproductive age that had begun in 1974, when adverse reports about the Dalkon Shield appeared. (However, no such trend is evident among those who continued to use the method, as is indicated by the high levels of satisfaction among IUD users.) The trend, it should be noted, has not been consistently downward: The level of favorable opinion of the IUD was as high in 1984 as in 1982, but it dropped in 1985 and has been stable since then.

Patterns of change in attitudes toward these three methods were similar for married and for unmarried women (not shown). Positive attitudes toward the pill rose steadily in both groups. In the case of the IUD, favorable opinion decreased sharply among both married and unmarried women between 1984 and 1985, with little change since then. Favorable opinion about the condom was stable among unmarried women between 1982 and 1985, was slightly higher in 1986 and then climbed steeply between 1986 and 1987; the increase among married women began slightly earlier (in 1985), but also was sharpest between 1986 and 1987.

Risk of Unintended Pregnancy

Table 3 shows the proportions of U.S. women exposed and not exposed to the risk of unintended pregnancy in 1982 and 1987. Seventy-two percent of 15–44-year-old women were exposed to risk in 1987. The largest proportion of those who were not at risk—15 percent of women aged 15–44—were not involved in a sexual relationship: Eleven percent had never had intercourse, and four percent reported having sex infrequently.

As one might expect, a large proportion (55 percent) of those aged 15–17 had never had sex. However, the proportion who had engaged in intercourse—45 percent—is much higher than the 32 percent reported in the 1982 NSFG.[15] The direction and size of the change must be confirmed by the 1988 NSFG, since that survey's methodology more closely resembles that of the 1982 NSFG; such an increase, however, would represent a continuation of the pattern of earlier initiation of sexual activity already shown through 1982.[16]

The proportion of married women aged 18–44 who were at risk of unintended pregnancy (78 percent) is not much higher than the proportion among unmarried women (69 percent). Half of married 18–44-year-olds who were not at risk were pregnant or trying to become pregnant, while most of the remainder were unable to become pregnant because they had had a hysterectomy, had experienced menopause or were infertile (either the woman herself or her husband). In contrast, more than three-quarters of unmarried women not at risk were not currently in a sexual relationship: Almost half had never had sex, and almost three in 10 had sex infrequently.

Comparing all women aged 18–44 in 1987 with similar women in 1982 shows that there have been only small changes between the two years. The proportion who were not exposed to the risk of unintended pregnancy decreased from 28 to 26 percent, and the proportion who had never had intercourse also dropped two percentage points; absolute changes in other components were even smaller. No change in exposure status occurred among married women. Among unmarried women, however, the proportion not exposed to risk dropped sharply, from 36 percent to 31 percent. This result reflects a decrease from 21 percent to 15 percent in the proportion

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[*] Comparisons over time are limited to women aged 18–44 because the younger women were not surveyed before 1985.

Table 4. Estimated number and percentage distribution of U.S. women aged 15–44, by exposure to the risk of unintended pregnancy and contraceptive-use status; and percentage distribution of exposed women aged 15–44, by contraceptive-use status, 1987 Ortho Birth Control Study

Exposure and use status	No. (in millions)	% of all women	% of exposed women
Exposed users	**38.0**	**66**	**92**
Sterilization	13.8	24	33
Female	8.1	14	19
Male	5.7	10	14
Pill	13.2	23	32
Condom	6.9	12	17
IUD	1.1	2	3
Diaphragm	1.7	3	4
Foam	0.6	1	1
Suppository	0.6	1	1
Sponge	1.1	2	3
Periodic abstinence	1.7	3	4
Withdrawal	2.3	4	6
Douche	0.6	1	1
Exposed nonusers	**3.3**	**6**	**8**
Not exposed	**16.1**	**28**	**na**
Never had sex	6.4	11	na
Infrequent sex	2.2	4	na
Hysterectomized/ menopausal	2.9	5	na
Infertile	1.4	2	na
Pregnant/seeking pregnancy	3.2	6	na
Total	**57.4**	**100**	**100**

Note: na = not applicable.

who had never had intercourse; there was little change in the other categories.

Changes in the age and past marital status of unmarried women over the time period account for only a very small part of these differences.* Never-married women were, on average, slightly older in 1987 than in 1982; however, the change in the population's age structure would have implied only a two-point decrease—from 32 to 30 percent—in the proportion of never-married women 18–44 who had not had sex. In fact, by 1987 that proportion had fallen to 24 percent (data not shown).

A comparison between 1982 and 1987 indicates that there was virtually no change in the proportion of 18–44-year-olds who had sex infrequently. This observation is substantiated by data showing that there was no more than a two-point difference in the proportion of unmarried women reporting infrequent sex in any two years between 1982 and 1987. In both years, one in 10 unmarried women who had ever had coitus were not in a sexual relationship at the time of the survey.

Because the proportion of unmarried women who had not had intercourse decreased between 1982 and 1987, the difference between married and unmarried women in the proportion exposed to the risk of unintended pregnancy decreased from 14 percentage points to nine. In fact, since unmarried women who were in a sexual relationship were less likely than married women to be either unable to conceive or pregnant or trying to become pregnant, the proportion of women having intercourse who were exposed to the risk of unintended pregnancy was much higher among unmarried women than among married women (about 90 percent in both years, vs. 78 percent—not shown).

Table 4 shows the number of women aged 15–44 in 1987 by exposure to the risk of unintended pregnancy. A total of 41.3 million were at risk of unintended pregnancy, while 16.1 million were not. Some 4.3 million were unable to become pregnant, while 3.2 million were either pregnant or trying to become pregnant. An estimated 6.4 million were not exposed to risk because they had never had intercourse, and another 2.2 million had intercourse infrequently.

Current Patterns of Use

The proportions of women exposed to the risk of unintended pregnancy who reported they were currently using a specific contraceptive are shown in Tables 4 and 5. Among the 41.3 million women aged 15–44 who were at risk, 92 percent (38.0 million) were using a contraceptive. The proportions and numbers of women using each method add to more than the proportion and number of total users because many women reported using more than one method at one time. Data are shown for women aged 18–44 in Table 5 to allow for comparison between 1987 and 1982. Since those aged 15–17 who are at risk account for a small proportion of all exposed women aged 15–44, the patterns of use seen among 18–44-year-olds are quite similar to those among all women of reproductive age.

In 1987, 93 percent of women 18–44 at risk reported that they were using contraceptives (see Table 5). The proportion who were using a method was higher among married women (97 percent) than among those not currently married (87 percent). The method most commonly relied on among all women was sterilization; it was by far the most prevalent method among married women. More than one-third of all exposed women aged 18–44 relied on it, representing 27 percent of all women aged 18–44 and 24 percent of those aged 15–44. Just over half of all married women 18–44 who were at risk of unintended pregnancy relied on sterilization, as did 13 percent of those who were unmarried. Eighty-five percent of all unmarried women relying on sterilization were separated, divorced or widowed (not shown).

Whereas reliance on female sterilization was only slightly more common than reliance on vasectomy among married women (28 percent vs. 24 percent), it was far more prevalent than vasectomy among unmarried women (12 percent vs. one percent). Thus, among all exposed women aged 18–44, female sterilization was more common than vasectomy (22 vs. 16 percent).

Women were only slightly less likely to be using oral contraceptives than they were to be relying on sterilization, and the pill was by far the most popular method among unmarried women. Almost one-third of all exposed women used the pill in 1987—almost half of unmarried women at risk of unintended pregnancy and more than one-fifth of married women. A total of 13.2 million women aged 15–44 used the pill in 1987. Among those who used a reversible method of contraception, 56 percent relied on oral contraceptives. Some 48 percent of married women using reversible methods took the pill, compared with 65 percent of the unmarried.

Although the condom was the third most commonly used method, it was used by a much smaller proportion of women: only about one woman in six at risk of unintended pregnancy. In 1987, the level of use was similar for both married and unmarried women. Overall, some 6.9 million women aged 15–44 relied on condoms.

No other method was used by more than six percent of exposed women, either married or unmarried. Five percent of women at risk used periodic abstinence, and the same proportion relied on withdrawal; four percent used the diaphragm, and three percent used the contraceptive sponge. Three percent also reported using IUDs. One percent or fewer relied on foam, vaginal suppositories, douching or a spermicidal cream or jelly alone. These levels are similar for both married and unmarried women, except that married women were slightly more likely to use foam, and unmarried women were more likely to use the contraceptive sponge.

As noted above, some respondents listed

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*Patterns of contraceptive use and exposure to the risk of pregnancy would have been essentially the same in 1987 as in 1982 if 1982 age- and race-specific proportions at risk and using each method had remained the same and only the age and race distributions of the population had changed. (E. F. Jones, The Alan Guttmacher Institute, personal communication, June 1988).

more than one current contraceptive method. On average, those practicing contraception reported using 1.17 methods each—1.14 for married users and 1.17 for unmarried users. It is impossible to know whether those who reported using more than one method used them together (for example, foam with the condom for added efficacy, or the pill and condom together for protection against sexually transmitted diseases) or used them separately at different times (for example, periodic abstinence at some times but condoms during the period of greatest pregnancy risk).

Information from the 1982 survey indicated that only 4–8 percent of women who relied on one of the three most effective methods—sterilization, the pill and the IUD—also used another method. Users of less-effective methods were much more likely to report multiple use, however; the proportion ranged from 27 percent of diaphragm users to 49 percent of condom users, 57 percent of spermicide users, 71–72 percent of those relying on periodic abstinence or withdrawal and 91 percent of those who douched for contraceptive purposes. While available tabulations for 1987 do not show the full details of multiple-method use, they do suggest similar patterns: Some 21 percent of diaphragm users relied on the condom as well, and 10 percent reported using the sponge (although some may have used both of these additional methods). Levels of condom use were similar among married and unmarried diaphragm users, but 18 percent of unmarried diaphragm users also used the sponge, compared with only four percent of their married counterparts. About half of those who relied on periodic abstinence also used the condom, and three in 10 also used withdrawal; similarly, among those relying on withdrawal, about one-half and one-third used the condom and periodic abstinence as well.

Although the vast majority of women at risk used contraceptives, the proportion who did not is not negligible, especially among unmarried women. Seven percent of all exposed women aged 18–44 (eight percent of exposed women aged 15–44, or 3.3 million) used no method. The level of reported nonuse was only three percent among exposed married women, although nonusers represented six percent of exposed married women who were not relying on sterilization. Among exposed unmarried women, the level of nonuse was much higher: 13 percent of those aged 18–44, and a similar proportion of those aged 15–44 (not shown). Among exposed unmarried women who had not been sterilized, 15 percent used no method. Six percent of all U.S. women aged 15–44 were at risk of unintended pregnancy but were not using a contraceptive method (see Table 4). Only two percent of married women fell into this category, as against nine percent of unmarried women (not shown).

Time Trends in Contraceptive Use

Although levels of overall contraceptive use were similar in 1982 and 1987, comparison of patterns of use in the two years indicates that changes have occurred, the largest being in levels of oral contraceptive use (see Table 5). The proportion of women at risk who relied on the pill rose from 27 percent to 32 percent over the five-year period. Levels of use increased among both married and unmarried women. This finding suggests a reversal of the decline observed among married women between 1973 and 1982.[17] The rise between 1982 and 1987 seems to be in line with the increased favorable opinion regarding the pill reflected in Figure 1.

Condom use also increased (by four percentage points) between 1982 and 1987. Although this absolute gain is slightly smaller than that for oral contraceptives, it represents a larger relative increase (33 percent, compared with 19 percent for the pill). There were sharp differences in trends in condom use between married and unmarried exposed women: Use by married women changed insignificantly, from 14 percent in 1982 to 15 percent in 1987, but the proportion among unmarried women increased from nine percent to 16 percent. This difference undoubtedly reflects a growing interest among the unmarried in using condoms to avoid contracting sexually transmitted diseases.

The proportion of women at risk who relied on sterilization rose from 34 percent to 36 percent, a nonsignificant increase. Among married women, the proportion rose sharply, from 46 percent to 51 percent, while among the unmarried, there was no significant change. Reliance on both female sterilization and male sterilization rose among married women, with resort to female sterilization increasing more than reliance on vasectomy.

Reliance on most other methods fell from 1982 to 1987; the exceptions were periodic abstinence, withdrawal and douche, which remained stable. Use of the IUD fell by four percentage points, use of the diaphragm decreased by three points, and reliance on other methods decreased by 1–2 points. Although these changes represent substantial relative declines, none of the decreases are large enough to be significant because levels of use were low to begin with.

The average number of methods reported per user in 1987 (1.17) was a bit higher than the 1.13 average reported in 1982. Reporting of multiple methods increased among both married women (from 1.12 in 1982 to 1.14 in 1987) and unmarried women (from 1.14 to 1.17). The increase in the average number of methods and the decrease in the use of less-effective methods other than the condom suggest that the rise in condom use was not completely

Table 5. Percentage distribution of U.S. women aged 18–44 exposed to the risk of unintended pregnancy, by contraceptive-use status, according to marital status, 1982 and 1987 Ortho Birth Control Studies

Method	1987			1982		
	Total	Married	Unmarried	Total	Married	Unmarried
All users	**93**	**97**	**87**	**92**	**96**	**84**
Sterilization	36	51	13	34	46	14
Female	22	28	12	19	24	10
Male	16	24	1	15	22	4
Pill	32	22	48	27	17	43
Condom	16	15	16	12	14	9
IUD	3	3	3	7	6	7
Diaphragm	4	4	4	7	6	8
Foam	1	3	1	3	3	1
Cream/jelly	*	*	*	1	1	1
Suppository	1	1	1	3	2	4
Sponge	3	1	4	*	*	*
Periodic abstinence	5	5	3	5	6	4
Withdrawal	5	5	6	5	5	5
Douche	1	1	1	1	1	2
Nonusers	**7**	**3**	**13**	**8**	**4**	**16**
Total	100	100	100	100	100	100

*Less than 0.5 percent.

due to substitution of the condom for the other methods; some of the change was due to greater joint use of methods.

Discussion

Information from this recent survey and comparisons of it with data from 1982 yield many surprises, contradicting some commonly held assumptions but confirming others. Perhaps the greatest surprise is that there is no indication that levels of sexual activity have decreased, even among the youngest women. The proportion of never-married women aged 18–44 who had ever had intercourse rose from 68 percent to 76 percent between 1982 and 1987, and there was little change in the proportion of women who said they had sex infrequently. These findings run counter to the assumption many have made that emphasis on urging teenagers to say no to nonmarital intercourse and concern about AIDS have caused large proportions of heterosexuals to abstain from nonmarital sexual intercourse. The findings may indicate the impact of counterbalancing factors, such as young adults' beliefs that they will not get AIDS, that one can tell if someone is healthy by looking at him or her, and that they are practicing safe sex by choosing only "obviously" healthy people as partners.[18] The data reported here suggest that if there has been a large impact on sexual behavior, either it is more likely to have been among relatively small subgroups, who would not greatly affect the national data, or it has affected factors other than whether people have sex (factors such as the number and type of partners, which are not covered by these data).

It appears, however, that there have been substantial increases in favorable attitudes toward the condom, and some increase in use of this method. From 1977 until 1985, no more than 41 percent of women aged 18–44 held a favorable opinion of it,[19] yet by spring 1987, that proportion had risen by about half, to 60 percent. Almost all of this increase occurred between 1986 and 1987, as discussion of heterosexual transmission of the AIDS virus and recommendations regarding condom use became more common.[20] Levels of condom use increased between 1982 and 1987; among unmarried women, the proportional increase was large. However, even in 1987, the overall level of use was still rather low—only about one in six women exposed to the risk of unintended pregnancy. This level represents 12 percent of all married women aged 18–44 and 15 percent of unmarried women who were currently in a sexual relationship. Nevertheless, the findings suggest that publicity about the condom's effectiveness in preventing the spread of many sexually transmitted diseases, especially AIDS, has had an impact. Favorable opinions of spermicides (another method believed to inhibit the transmission of the AIDS virus) remain low, however, and use declined to an even lower level than in 1982.

While overall levels of contraceptive use were stable, use of the most effective methods increased. In 1982, 68 percent of those at risk of pregnancy relied on sterilization, the pill or the IUD, whereas some 71 percent did so in 1987. The steep increase in pill use (from 27 percent to 32 percent of exposed women aged 18–44) and a smaller increase in reliance on sterilization (from 34 to 36 percent) more than offset the four-point drop in IUD use. The greater use of oral contraceptives and the steady growth in the proportion of women with a favorable opinion of them suggest that educational attempts to provide balanced information on both the risks and the benefits of the pill may be dispelling some of the fears and misinformation about it.

There is cause, however, for continued concern about how well sexually active women are protected against unintended pregnancy and sexually transmitted diseases. All of the net increase in the use of the most effective methods occurred among married women: A steep increase in reliance on sterilization (from 46 to 51 percent) and in the use of the pill (from 17 to 22 percent) led to a net 10 percent increase—from 69 percent to 76 percent—in the proportion using the most effective methods, despite the decline in IUD use.

Among unmarried women at risk of unintended pregnancy, in contrast, the proportion using the most effective methods remained stable, at 64 percent. The reason may be that unmarried women were more likely than married women to choose the condom over the pill. Although some of the increase in condom use was due to joint use with other methods, not all of the increase can be accounted for in this way. Unmarried women experienced a smaller proportional increase in pill use than did married women; if use of the pill had grown at the same rate among these women as it did among married women, 55 percent would have been using it, not 48 percent. Some of this difference has apparently been taken up by increased use of the condom among unmarried women, a change that may make them more likely to experience an unintended pregnancy but less likely to contract a sexually transmitted disease.

In spite of increases in use of the pill, condom and sterilization, levels of nonuse are still of concern. Eight percent of all women aged 15–44 at risk of unintended pregnancy were using no contraceptive method, with the level even higher—13 percent—among unmarried women at risk.

Thus, in the half-decade between 1982 and 1987, the proportion of American women in sexual relationships increased. They became better protected against unintended pregnancy and, to some extent, against sexually transmitted diseases during that time. Nonetheless, a nontrivial minority of all women at risk, and an even larger proportion of the unmarried, were not using a contraceptive method, and many more were not using condoms or spermicides, which can help prevent sexually transmitted diseases.

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Intermediate Determinants of Racial Differences In 1980 U.S. Nonmarital Fertility Rates

By Phillips Cutright and Herbert L. Smith

Summary

There are four major determinants of racial differences in nonmarital fertility rates in the U.S.: differential sexual activity (exposure to risk); differential in spontaneous and induced abortion; differential contraceptive use (including method efficacy); and differential legitimation, through marriage, of births conceived out of wedlock. Racial differences in all four indicators encourage higher black than white nonmarital fertility rates in every age-group examined; however, the relative contribution of each determinant to differences in nonmarital fertility varies according to age.

The gap between whites and blacks in contraceptive use is of greatest concern to policy-makers, because family planning effectiveness can, at least theoretically, be changed by program effort. However, even if black women and white women had equivalent levels of contraceptive use, sexual activity and recourse to abortion, there would still be substantial racial differences in nonmarital fertility rates because of the greater propensity among whites to legitimate premaritally conceived births.

Racial differences in sexual activity, contraceptive use, abortion ratios and the legitimation of out-of-wedlock conceptions through marriage encourage higher black than white nonmarital fertility rates.

Introduction

Racial differences in nonmarital fertility rates in the United States are in part the result of differences in three major intermediate determinants of fertility: exposure to the risk of pregnancy through sexual activity; contraceptive use, including use-effectiveness of methods; and the prevalence of induced abortion.[1] Another important factor in the racial differential is the propensity to legitimate out-of-wedlock conceptions through marriage. In the following analysis, we apply a simple analytical model to the "nonmarital fertility process" to estimate the relative contribution of each of these factors to differences in the age-specific nonmarital fertility rates of white and black women.

With respect to other determinants of fertility that have a bearing on nonmarital fertility differentials, either we incorporate them into our measures of the main determinants (for example, spontaneous fetal loss is included in the context of births averted through induced abortion) or we assume that racial differences in certain practices, such as breastfeeding, are small relative to the effects of the four major determinants. However, to say that these other factors have a small effect on racial differentials is not to say that they are unimportant determinants of fertility, it is only that they are unlikely to add to our understanding of nonmarital fertility differentials.

The decomposition of racial differentials in nonmarital fertility is complicated by the statistical definition of the nonmarital fertility rate[2] (the number of births per 1,000 unmarried women): Births that are counted in the numerator include those in which both conception and delivery occur out of wedlock; those that are conceived out of wedlock but are legitimated through marriage during the pregnancy are excluded. Similarly, women who marry after conception but before delivery are partially lost from the denominator of the rate.[*] Thus, racial differences in the propensity to marry among premaritally pregnant women will modify the effects that racial differentials in sexual exposure, contraceptive use and abortion have on differentials in nonmarital fertility—even though the births and the women involved are not counted in the nonmarital fertility rates. The impact of the propensity to marry can be illustrated by comparing the black-to-white ratio of nonmarital fertility rates with the corresponding ratio of out-of-wedlock-conceived birthrates (OWCBR):[†][3] In 1980, for example, the ratio of black-to-white teenage nonmarital fertility rates was 5.34, compared with a ratio of just 3.02 when legitimated births to teenagers are included in the numerator.

Published data now make it possible to estimate the relative importance of each of the four major determinants of racial differences in nonmarital fertility rates for 1980. Comparisons across age-groups (15–19, 20–24 and 25–29) allow an examination of differences in the impact of each of the four factors at different ages. The ability to compare age-groups is important because, for example, differential nonuse of contraceptives may be more important in explaining differences in fertility between younger white and black unmarried women than it is in explaining racial differences at older ages.[4]

We first examine data for the four variables that will be used in our decomposition to account for racial differences in 1980 nonmarital fertility rates (see Appendix 1,

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[*] This is because annual age-specific counts of the nonmarried population are based on mid-year estimates, so that pregnant women who marry prior to the count are not included in the denominator.

[†] The OWCBR adds to the numerator of the standard nonmarital fertility rate the number of births conceived by unmarried women that were legitimated before birth by the marriage of the mother.

page 119, for sources of data). Table 1 shows measures of the four variables; all of these indicators vary by race, and most vary by age-group as well.

Among whites, the estimated proportion of sexually active women increases from 30 percent of the 15–19 age-group to 52 percent of the 20–24 age-group and then remains stable (at around 50 percent) through ages 25–29. Among blacks, sexual activity increases modestly with each successive age-group, from 53 percent of women aged 15–19 to 60 percent of those aged 20–24 to 66 percent of 25–29-year-olds. Nonuse of contraceptives declines with age among both white and black never-married women.* Legal induced abortion ratios among unmarried women increase with age for both whites and blacks. Whereas the proportion of women who legitimate births conceived out of wedlock declines sharply with increasing age among whites, the proportion stays very low for blacks in all three age-groups.

Looking at the pattern of racial differences by age-group, we find that

- black-white differences in the level of sexual activity decline between the 15–19 age-group and the 20–24 age-group but increase between the latter age-group and the 25–29-year-olds;
- although the gap between blacks and whites in nonuse of contraceptives remains rather stable at 10–12 percentage points in all three age-groups, the decline in nonuse with age is greater for whites than for blacks, causing the ratio of black-to-white nonuse to rise with age;
- the gap between the black-white abortion ratios narrows with age (but remains pronounced even for 25–29-year-olds); and
- absolute differences between white and black women in the legitimation of births decline with age. With respect to this last pattern, we note that the black-to-white ratio of the OWCBR is rather stable, at just over 3, while the comparable ratio for nonmarital fertility rates declines from 5.3 among teenagers to 4.0 among the 25–29 age-group.

Table 1. Nonmarital fertility rates, and measures of four major determinants of nonmarital fertility, by race and age-group, 1979–1980*

Race and age-group	Nonmarital fertility rate		Nonmarital fertility determinant			
	OWCBR†	Illegitimacy rate	% sexually active	% not using contraceptives	Legal abortion ratio‡	% legitimated among OWCB†
15–19						
Black	95.5	89.7	52.6	59.2	44	6.1
White	31.6	16.8	30.1	48.9	69	46.8
B/W ratio	3.02	5.34	1.75	1.21	0.64	0.13
20–24						
Black	121.1	116.7	59.8	24.8	54	3.6
White	36.4	24.5	51.7	12.6	74	32.6
B/W ratio	3.33	4.76	1.16	1.97	0.73	0.11
25–29						
Black	85.7	82.7	66.0	20.4	59	3.5
White	27.4	20.5	49.7	10.2	76	25.3
B/W ratio	3.13	4.03	1.33	2.00	0.78	0.14

*Data on sexual activity and contraceptive use among women aged 15–19 are from 1979; those for women aged 20–24 and 25–29 are from 1980. (See Appendix 1 for sources of data.)

†OWCBR = out-of-wedlock-conceived birthrate; in this table and in Table 2, OWCB = out-of-wedlock-conceived births.

‡The legal abortion ratio used here is the number of legal abortions among unmarried women per 100 nonmarital births plus abortions among unmarried women.

Clearly, differences between the races in all four indicators encourage higher black than white nonmarital fertility rates in all three age-groups.

Findings

We now ask how much of the observed racial differential in nonmarital fertility rates is due to racial differences in each of the three intermediate fertility variables (exposure to intercourse, contraceptive use and prevalence of induced abortions) and in the legitimation of births conceived out of wedlock. Table 2 shows the proportion of the black/white ratio of nonmarital fertility rates that is attributable to each of the four variables discussed here. The decomposition is done separately for each of the age-groups. The proportion attributable to racial differences in contraceptive practice is adjusted for the racial differential in contraceptive failure rates among users, and the proportion attributable to racial differences in induced abortions is adjusted for differentials in the incidence of spontaneous miscarriages, which would otherwise have averted a certain fraction of potential births. Table 2 also displays for each age-group a residual proportion, which can be defined as the proportion of the racial differential in nonmarital fertility not explained by our four major factors. The –0.06 percent residual at ages 15–19 is a reminder that not all decompositions sum to 100 percent "in any sensible fashion,"[5] and our preference is to view the relatively small magnitude of these residuals at all ages as an indication that our decomposition—which is based on an approximation and not on an algebraic identity—is a reasonable one. (For a discussion of our methodology, see Appendix 2, page 120.)

Among teenagers, the gap between black and white nonmarital fertility rates is almost equally attributable to three of the four major indicators of the racial differential—about one-third is related to greater exposure to risk among blacks; one-third is related to the lower rate of legitimation among blacks; and nearly one-third is a function of the lower black than white abortion ratio among unmarried women. Racial differences in contraceptive use (including method efficacy) account for less than 10 percent of the difference in nonmarital fertility rates among teenagers.

Higher black than white levels of sexual activity are less important at the older ages than they are among adolescents.† Among women aged 20–24 and 25–29, the lower prevalence of abortion among black unmarried women accounts for the largest single share of the differential in nonmarital fertility. In these two age-groups, approximately one-quarter of the racial difference in nonmarital fertility can be attributed to differences in contraceptive practice. The impact of differential prospects for the legitimation of births conceived out of wedlock declines sharply with increasing age.

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*The proportion of sexually active women aged 15–19 defined as "not using contraceptives" in Table 1 is not strictly comparable to the corresponding proportions of women aged 20–24 and 25–29 (see Appendix 1). However, even if the definition of teenagers not using contraceptives were restricted to those who reported never having used contraceptives (24 percent of whites and 36 percent of blacks), the pattern of decline in nonuse with age would hold true.

†The proportion attributable to sexual activity among 20–24-year-olds—just under 10 percent—is surprisingly low. This age-group has by far the largest unexplained residual, which may suggest that our estimate of the black-white differential in sexual activity (and, consequently, the survey data on which it is based) is significantly understated.

Discussion

Some researchers may be surprised that the higher rates of nonuse of contraceptives and contraceptive failure among black women make a relatively small contribution to differentials in nonmarital fertility, particularly among teenagers. Similarly, one might expect the impact on nonmarital fertility differentials of higher black than white exposure to the risk of pregnancy among women aged 20–24 and 25–29 to be greater than our analysis indicates. However, our analysis reveals that no one or even two factors can explain the racial difference in nonmarital fertility rates—rather, the effects of each factor tend to vary by age, and each of the four factors considered is one of the top two predictors of nonmarital fertility in at least one age-group.

Of the three major intermediate determinants of fertility we have examined, nonuse of contraceptives (along with contraceptive failure rates among users) is of immediate and greatest concern to policymakers, because family planning effectiveness can, at least theoretically, be changed by program effort. A great deal of added program effort will be needed before racial differences in contraceptive use and in the use-effectiveness of methods will be eliminated as a cause of racial differences in nonmarital fertility rates.

Family planning programs can have little impact on levels of sexual activity among unwed couples. Still, exposure to risk is not a comparatively large factor in racial differences in nonmarital fertility rates, except among teenagers. The increased use of effective contraceptive methods by older black women in particular could reduce racial differences in nonmarital fertility rates by a factor equivalent to that generated by racial differences in legitimation.

The lower black than white legal abortion ratios among unmarried women, an important factor in increasing the racial differential in nonmarital childbearing at all ages, may have fewer direct policy implications than one might suppose. Higher abortion ratios among whites obtain in a context in which comparatively fewer whites than blacks are at risk of pregnancy, owing to both lower levels of sexual activity and higher use of contraceptives. At the same time, abortion ratios rise with age among both white women and black women, even as the rates of contraceptive use increase. Thus, there is no evidence at this very aggregated level to suggest that abortion is in any sense a substitute for effective contraceptive use, or that the equalization of contraceptive use rates should be expected to have as its counterpart the diminution of racial differences in abortion ratios. The difference in abortion ratios among unmarried whites and blacks in 1980 is not likely a result of differences in access to legal abortion providers,[6] although inability to pay may restrict blacks' use of services more than whites' in states that do not fund abortions for the poor. Lower abortion ratios among black women may be a reflection of the greater prevalence of out-of-wedlock childbearing in the black community, and the diminished social stigma attached to it. Insofar as higher black than white illegitimacy ratios are in large measure a function of comparatively low levels of nuptiality and marital fertility among blacks,[7] they are not likely to be remedied at the level of family planning policy.

Finally, it is important to remember that at all ages, approximately one-fifth to one-third of the racial differential in nonmarital fertility rates can be attributed to differences in the propensity to legitimate out-of-wedlock conceptions. If this difference is due to racial differences in social norms that pressure or fail to pressure unmarried pregnant women to marry,* it follows that even if black women and white women were to have equivalent levels of sexual activity, contraceptive use and recourse to abortion, there would still be substantial racial differences in nonmarital fertility rates.

Table 2. Proportion of the racial differential in nonmarital fertility rates attributable to each of the determinants of racial differentials in nonmarital fertility, by age-group, 1980

Determinant	15–19	20–24	25–29
Sexual activity	0.33	0.09	0.20
Contraceptive use, efficacy*	0.09	0.23	0.25
Abortion	0.29	0.30	0.32
Legitimation of OWCB	0.34	0.23	0.18
Residual†	–0.06	0.14	0.05

*Proportions are adjusted for the racial differential in contraceptive failure rates among contraceptive users.

†Residual refers to that proportion of the racial differential in nonmarital fertility rates that is not explained by the four major indicators of nonmarital fertility.

Appendix 1: Sources

- *Sexual activity, contraceptive use and method efficacy.* Data for these variables are for never-married white and black women. Over 99 percent of unmarried women aged 15–19 are never-married; this proportion declines to 93 percent among 20–24-year-olds and to 70 percent among 25–29-year-olds.[8] Whether large differences in sexual activity and contraceptive use exist between never-married and divorced women aged 25–29 is unknown; however, if the experience of separated women can be considered a guide to the behavior of divorced women, the data indicate[9] a somewhat higher rate of both sexual activity and contraceptive use among such women than among never-married women aged 25–29.[10]

Estimates of sexual activity among never-married women aged 15–19 are based on data from a 1979 survey of adolescents living in metropolitan areas reported by Zelnik and Kantner;[11] we derived national estimates of sexual activity by deflating the metropolitan-only rates by the percentage point difference between national and metropolitan-only rates as of 1976.[12] The percentage of teenage girls who ever had intercourse was then reduced by 12.2 percent for both white and black adolescents; this results in the approximate proportions of white and black teenagers that had had only one coital act.[13] This manipulation partially adjusts the data to represent the relative proportions of white and black adolescents at risk of pregnancy in 1979. Estimates of the proportions of never-married women aged 20–24 and 25–29 who were sexually active in 1980 are from Tanfer and Horn,[14] based on data from the 1983 National Survey of Unmarried Women.

Estimated proportions of never-married women aged 20–24 and 25–29 not "currently using" contraceptives are also taken from Tanfer and Horn.[15] The proportion of adolescents who were not currently using contraceptives were obtained by adding "never-users" to those who did not use contraceptives at first intercourse but did use contraceptives "at some time."[16] Doing so yielded proportions of adolescents not currently using contraceptives similar to those estimated for 1982 by the National Research Council.[17]

Contraceptive failure rates are based on the proportion of ever-pregnant unmarried teenagers who reported (in 1976) that they always or sometimes use contraceptives; these rates were 21 percent for blacks and 18 percent for whites.[18] Absent other information, these contraceptive failure rates were assumed to hold true at the older ages as well.

- *Abortion ratios.* The 1980 age- and race-specific ratios of legal abortions to out-of-wedlock births plus legal abortions, for unmarried women, are from Henshaw et al.[*][19] Spontaneous fetal loss is assumed to occur in 32 percent of pregnancies among blacks and 19 percent of pregnancies among whites.[20] The count of out-of-wedlock births used here is from the National Center for Health Statistics,[21] and the counts of unmarried women are from the 1980 census.[22]

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*However, racial differences in legitimation may not result only from differences in normative pressures to legitimate out-of-wedlock pregnancies (see reference 28).

- *Out-of-wedlock births.* Estimates of the proportion of births that were conceived out of wedlock but subsequently legitimated are derived from a series of calculations based on national marriage data for 1978–1979. First, to estimate the number of women entering a first marriage in 1980, we multiplied the 1978–1979 age- and race-specific first-marriage rates (per 1,000 never-married women)[23] by the number of never-married women in 1980. To estimate the number of women entering a second- or higher-order marriage in 1980, we computed the ratio of the number of women entering a first marriage in 1980 to the number of such women reported in the Marriage Registration Area (MRA)[24] and multiplied the result by the MRA count of women in 1980 beginning a second- or higher-order marriage. Subtracting the count of first-born out-of-wedlock births (by age and race)[25] from all out-of-wedlock births yields the number of second- or higher-order out-of-wedlock births in 1980, by age and race.

The number of brides pregnant with a first child,[26] by age and race, is the first approximation of the number of all OWCBs that were legitimated by marriage in 1980. To estimate the number of second- and higher-order births that were legitimated by marriage, we first took the ratio of the proportion of first births conceived out of wedlock and legitimated in 1980, by age and race, to the proportion of such conceptions legitimated in 1964–1966.[27] For example, 48 percent of first births conceived out-of-wedlock among whites aged 15–19 in 1980 were legitimated, compared with 70 percent of such births in 1964–1966; the resulting ratio was 0.69. To obtain a comparable estimate for legitimated second- and higher-order births in 1980, we multiplied the proportion of second- and higher-order OWCBs that were legitimated in 1964–1966 by 0.69. Among white teenagers, the earlier legitimation proportion for second- and higher-order conceptions was 53 percent;[28] this proportion multiplied by 0.69 equals 37 percent—our estimate for the proportion of second- and higher-order births that were legitimated in 1980.

To estimate the number of white teenage brides who were premaritally pregnant with a second- or higher-order birth, we multiplied the number of 1980 second- or higher-order out-of-wedlock births to white teenagers (17,956) by 1/(1 –0.37). The resulting estimated number of second- and higher-order OWCBs among white teenagers was 28,502. The difference between 28,502 and 17,956 is 10,546, which is our estimate of the number of second- and higher-order births to white teenagers that were conceived out of wedlock but legitimated prior to marriage. The same procedure was applied to each age-group and racial group.

Appendix 2: Decomposition

Our decomposition of age-specific racial differentials in nonmarital fertility allots the ratio of the black-to-white nonmarital fertility rate to each of four components: differential sexual activity (exposure to risk); differential contraceptive use (including method efficacy); differential rates of abortion (both induced and spontaneous); and differential legitimation by marriage of OWCBs. These factors are theoretically the most salient determinants of racial differences in nonmarital fertility rates. Because black women and white women may also differ with regard to other (unmeasured) variables (e.g., the frequency of unprotected coitus or fecundability), and because both sampling and demographic errors in measured variables are likely, our decomposition is necessarily an approximation. We therefore include a residual term, which is the proportion of the racial differential in nonmarital fertility that is not explained by the four major factors.

Our model is based on the premise that out-of-wedlock births are the product of a contingent process: There is no risk of pregnancy absent exposure to intercourse; there is no risk of pregnancy among those exposed to intercourse if they use effective contraceptives; and there is no birth if an induced abortion (or miscarriage) occurs. But the nonmarital fertility rate is an inadequate measure of the proportion of women at risk of this sequence of contingencies, since the denominator—the mid-year population of unmarried women—excludes women who married prior to mid-year regardless of their sexual activity, contraceptive-use status and pregnancy status. Similarly, the numerator of the nonmarital fertility rate excludes births to women who were unmarried at conception but were married at the time of delivery. Thus, our model also adjusts for racial differences in OWCBRs by taking into account the extent to which observed racial differentials in nonmarital fertility rates overstate those that would exist were blacks as likely as whites to legitimate premarital pregnancies.

The formal model for the decomposition is

$$(1)\quad [R_B/R_W] =$$

$$(1/[O_B/O_W])[S_B/S_W][C^*_B/C^*_W][P_B/P_W] =$$

$$[R] = (1/[O])[S][C^*][P],$$

where R_B is the age-specific nonmarital fertility rate for blacks and R_W is the corresponding rate for whites;[†] O_B and O_W refer to the ratio of the OWCBR to the illegitimacy rate; S_B and S_W reflect rates of sexual activity among unmarried women; and C^*_B and C^*_W are measures of contraceptive nonuse and ineffective method use. These last terms are obtained by adjusting estimated rates of contraceptive nonuse (C_B and C_W) to include the effects of race-specific failure rates among contraceptive users, via

$$(2)\quad [C^*_B/C^*_W] = [C_B+(1-C_B)FB]/[C_W+(1-C_W)F_W],$$

where F_B and F_W are contraceptive failure rates.

Finally, P_B and P_W are the probabilities that a conception will result in a live birth. Here, race-specific legal abortion ratios (A_B and A_W) are adjusted for spontaneous fetal loss according to the formulae

$$(3a)\quad P_B = (1.0-A_B) / (1.32-0.16A_B) \text{ and}$$

$$(3b)\quad P_W = (1.0-A_W) / (1.19-0.09A_W)$$

These formulae are adaptations of those proposed by Tietze as reported in Henshaw et al.[29]

The proportionate contributions of the factors shown in Table 2 are based on taking natural logarithms (ln) of both sides of the first equation and dividing through by ln[R]:

$$(4)\quad 1 = \ln(1/[O])/\ln[R] + \ln[S]/\ln[R] + \ln[C^*]/\ln[R] + \ln[P]/\ln[R].$$

Again, because the expression of nonmarital fertility rates as a ratio of terms in the first equation is not an algebraic identity, a balancing residual is required, which equals unity minus the sum of the terms on the right-hand side of the last equation.

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[*] We used abortion ratios among unmarried nonwhite women, as reported in Henshaw et al., as a proxy for abortion ratios among unmarried black women, because data for black women are unavailable.

[†] Subscripts corresponding to age-groups are assumed in equation 1, and henceforth we dispense with the qualification that these measures are age-specific.

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The Role of Sexual Self-Concept In the Use of Contraceptives

By Laraine Winter

Summary

Sexual self-concept—defined as an individual's evaluation of his or her own sexual feelings and actions—is proposed as an important predictor of contraceptive behavior among teenagers, and a scale measuring the concept is described. In exploratory analyses among university students, sexual self-concept is found to be associated with frequency of contraceptive use and use at most recent intercourse. It is also associated with their choice of contraceptive—students who had used prescription methods at last coitus had significantly higher scores on the sexual self-concept scale than did those who had used nonprescription methods or no method.

These findings, together with the finding from analysis among high school students that sexual self-concept appears to improve with age, suggest that younger teenagers may be poorer users of contraceptives because of a lower sexual self-concept. Counseling and sex education that address social and psychological issues may help improve adolescent contraceptive practice by addressing teenagers' views of their own sexuality.

Background

The high frequency of unintended pregnancies in the United States has spawned a large body of research on factors associated with contraceptive use. Many women who do not desire a child and have access to effective contraceptives do not use a method consistently; some do not use a method at all. The problem is particularly acute among adolescents, for whom childbearing often has adverse medical, social and economic consequences.

The failure to use contraceptives is largely responsible for the approximately 1.1 million yearly pregnancies among U.S. teenagers.[1] Several studies have revealed that the likelihood of contraceptive practice is inversely related to age; in one study among never-married women 15–44 years of age, women 20–44 years old practiced contraception at significantly higher rates than did teens 15–19 years old. Furthermore, about one-third of the sexually active unmarried teens did not use contraceptives, the largest proportion found from among all other age-groups.[2] Other studies have found contraceptive use at first intercourse to be substantially lower among girls less than 17 years old when compared with older teenagers.[3]

Why do many sexually active teenagers who do not desire a pregnancy fail to use

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birth control? One approach to answering the question is to ask young people directly. In a survey of adolescent girls, the reason respondents most often gave for not using birth control during the most recent sexual encounter was that they "did not expect to have sex."[4] This highlights the sporadic and unpredictable nature of adolescent sexual behavior. Moreover, this reply only raises the additional question of why sexually active young people so often fail to anticipate a sexual encounter. It also evinces the limitations of data based on self-reports—namely, the general difficulty people have in identifying effective causes of their own behaviors and their tendency to rationalize their behavior.[5]

A more common approach in examining failure to use a method is to determine empirically what distinguishes contraceptive users from nonusers. Sociologists and demographers have investigated factors like age and race while social psychologists have explored factors such as beliefs and attitudes. Some demographic differences have been found in both sexual behavior[6] and contraceptive practice,[7] but these findings have been insufficient to help us understand what motivates contraceptive behavior: Knowing, for example, that young women differ from older women in their use of the more effective birth control methods does not explain why they differ. While the psychosocial literature has identified informational, attitudinal and emotional barriers to contraceptive use[8]—and these findings are indisputably both valid and valuable—all of this research has produced a rather fragmented explanation of the widespread pattern of poor contraceptive practice, rather than the cohesive one that is needed.

Perhaps a better starting point for such an explanation is to examine the numerous anecdotal and quasi-anecdotal accounts[9] that document that sexual activity among U.S. teenagers is often unplanned, occurring as the result of unanticipated, unintentional passion.[10] Contraceptive use, by definition, is a planned action: At least one partner must obtain a birth control method before the sexual encounter occurs. To do so, the individual must be able to anticipate the possibility of a sexual encounter. Anything that interferes with the ability to plan will reduce the likelihood that birth control will be obtained in time.

One factor that obviously could interfere, especially among adolescents, is guilt or other negative feelings about sex. These feelings could create psychological barriers to obtaining birth control by making thoughts about a possible sexual encounter aversive or anxiety-provoking. Past negative experiences with sexuality—for example, punishment for masturbation—could also make thoughts about sex uncomfortable. An individual who feels guilty about sex thus would be motivated to avoid thinking about the possibility of having sexual intercourse at all. Therefore, when a sexual encounter occurs, this person is likely to be unprepared with an effective contraceptive and risks a pregnancy.

Two psychological concepts that pertain to negative feelings about sex have been investigated in relation to contraceptive use: sex guilt, which encompasses feelings, cognitions and actions related to sex,[11] and erotophobia, a general emotional response to a wide range of sexual topics.[12] Both concepts are hypothesized to influence a variety of sex-related activities and responses to sexual objects, including contraception. Donald Mosher developed a construct to measure an individual's level of sex guilt, and Donn Byrne and Leonard White developed a scale to measure a person's level of erotophobia. Research using these constructs suggests that they are predictive of consistency and choice of method. People who have high scores on either scale are poorer users of contraceptives than those whose scores are low.[13] However, the two constructs have limited practical utility for those concerned with adolescent behavior; both sex guilt and erotophobia are understood to be deep-rooted and relatively permanent dispositions acquired in early development, and consequently difficult to modify.

Furthermore, because contraceptive practice is known to improve with age, increasing throughout adolescence and into young adulthood, enduring personality traits like sex guilt and erotophobia cannot supply the entire explanation for contraceptive use or nonuse. The two concepts are not likely to account for age-related changes in behavior, or they would not be personality traits.[14]

Sexual Self-Concept

In this article, we propose a different concept as an important predictor of contraceptive behavior, and report the results of exploratory analyses. Logically, a phenomenon that changes with maturation, as does contraceptive behavior, has an identifiable cause that changes in a corresponding fashion. We theorized that an identifiable factor that influences contraceptive use is the evaluation of one's sexuality, instead of feelings about sexuality in general—namely, the feelings about one's particular sexual development that change as one matures. We have termed this factor "sexual self-concept (SSC)," and define it as an individual's evaluation of his or her own sexual thoughts, feelings and actions.*

We hypothesized that this concept would exhibit several characteristics: First it would correlate reliably with important measures of contraceptive practice; second, it would develop, and its development would parallel that of contraceptive use; third, because contraceptive practice varies within, as well as between, age-groups, sexual self-concept itself would vary within age-groups; and fourth, though not essential, it would correlate with measures of sex guilt and erotophobia.

Conceptually, sexual self-concept differs from sex guilt and erotophobia in several ways: It refers specifically to evaluation of one's own sexuality rather than to sexuality in general; it develops (that is, becomes more positive) throughout adolescence; and it represents a "shallow" psychological characteristic rather than a deep and enduring personality disposition. That is, it can be influenced by experience without the necessity of psychotherapy.

To explore the utility of sexual self-concept as something that can predict contraceptive behavior, we developed a scale to measure the concept. We first met with 15 junior and senior high school students in total, half of them peer counselors, from an inner-city and a suburban school district in central Pennsylvania. We discussed the problem of teenage pregnancy and nonuse of contraception and subsequently developed a pool of potential items for inclusion in the scale. These items reflected four general areas: feelings about having sexual intercourse; feelings about obtaining and using contraceptives; discussions

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*The psychological notion of self, or self-concept (not to be confused with self-esteem), has a long history. Most theories of personality put forward since 1950 view the self as either an agent or an object of the individual's own knowledge and evaluation. In all such theories, the self is assumed to influence behavior. The notion of sexual self-concept described here is based on Markus's work postulating the operation of a mental structure called the self-schema, which is formed as a result of attempts to organize, summarize and explain one's own behavior. Individuals develop self-schemata as needed for specific attributes (for example, independence), and these schemata are assumed to influence the processing of behavior information. We depart from Markus's construct in assuming that everyone has a sexual self-concept (since everyone experiences sexuality); individuals differ only in how positively or negatively they evaluate that concept. (See: H. Markus, "Self-Schemata and Processing Information About the Self," *Journal of Personality and Social Psychology*, **35**:63, 1977.)

about sex and contraception; and evaluation of one's sexual development. Subsequently, 19 college students enrolled in a psychology course at New York University (NYU) also contributed items intended to measure elements of sexual self-concept. These items and those produced by the high school students were integrated into a preliminary SSC scale containing 36 items. To avoid response bias, half of the items were positively worded.

We gave the preliminary SSC scale to a group of 53 male and female undergraduate volunteers recruited through an introductory psychology course at NYU. An item analysis was conducted by computing the scale mean and correlating the responses to each item with the mean.[15] The final SSC scale contained 14 items, selected on the basis of the strength of their correlation with the scale mean.[*] The SSC scale items are shown in Table 1.

We posed three empirical questions about sexual self-concept: Does it develop with age? (A cross-sectional study cannot answer this last question definitively, since age differences may more accurately represent cohort differences. Nevertheless, the present study did test age-group differences, which are insufficient but necessary indicators of developmental differences.) Does it account for contraceptive use among sexually active young people? And is it distinct from similar psychological concepts, such as erotophobia? To answer these questions, we administered the SSC scale to a group of high school students and a group of university students.

Results

- Age-group differences—Fifty male and 70 female ninth and 12th graders at a high school in central Pennsylvania completed the SSC scale. Their ages ranged from 14 to 19, and were distributed bimodally: The majority of ninth graders ($n = 34$) were 15 years old and most of the senior students ($n = 85$) were 17 years of age. Mean scores on the SSC scale were computed for age-groups 14–16 and 17–19 and for sex. (Group comparisons were made using t-tests of independent means with pooled estimates of variance to accommodate the unequal group sizes.) No differences were found in mean scores by sex. However, the students did differ significantly on the SSC scale by age, with the 17–19 year olds scoring higher on the SSC scale than the 14–16-year-old students.[†]
- Contraceptive use and SSC—In order to fulfill a research requirement in an introductory psychology course, 149 unmarried male and female undergraduates from NYU volunteered to participate in this study; students were fully informed prior to recruitment that the nature of the study focused on sexual behavior and attitudes toward sexuality. Each student completed the SSC scale; a one-page demographic information sheet (covering such characteristics as age, sex and religious background); and a questionnaire eliciting information on whether the respondent had ever had sexual intercourse (and if so, whether more than once), how consistently the respondent used contraceptives (always, most of the time, usually not or never), whether the respondent had used a birth control method at his or her first and most recent intercourse and, if not, the reason the respondent did not use birth control.[‡]

The students ranged in age from 17 to 23 years; nine percent were 17, 55 percent were 18, 28 percent were 19–20 and the remaining eight percent were 21 and older. Males comprised 40 percent of the group. Sixty-nine percent of the students were white, 24 percent were Asian, five percent were black and data were missing for two percent. Eleven percent were Hispanic.

Fifty-three percent of the students reported having had intercourse at least once, 46 percent were sexually inexperienced and one percent did not answer this question; six percent had had intercourse only once. Of the 77 sexually experienced students, 49 percent said they always used a contraceptive, 32 percent used one most of the time, 14 percent usually did not use birth control and four percent never did.

Sixty-two percent of the participants said that they had used some form of birth control at first intercourse. Among this group, condoms had been the most frequently used method (59 percent), followed by withdrawal (22 percent) and oral contraceptives (11 percent). The reason most often given for not using birth control at first intercourse was that the respondent "did not expect to have sex" (79 percent of those who had not used), and it was the only explanation offered by more than two students. At their most recent intercourse, 73 percent of the sexually experienced students had used a method. Condoms and the pill were the most frequently used methods, each mentioned by 37 percent of the sexually active students. Eighteen percent had used withdrawal, six percent the diaphragm and two percent the sponge. "Did not expect to have sex" was still the primary reason given for failure to use birth control.

To see whether sexual self-concept predicted the contraceptive use of the sexually experienced subjects, we correlated SSC scores and frequency of contraceptive use, use at most recent intercourse and use at first intercourse. SSC scores were found to be predictive of all measures except birth control use at first intercourse. In contrast with sexual self-concept, erotophobia did not correlate significantly with responses to any of the contraceptive use questions.[§]

Table 1. Sexual self-concept scale

1. I consider myself physically mature.
2. I consider myself emotionally ready for a sexual relationship.
3. I would (or do) feel guilty about having sex.
4. I would be (or am) embarrassed to go into a drug store to buy a birth control method (like pills or rubbers).
5. I feel it's OK for me to have sex.
6. I believe that members of the opposite sex generally consider me attractive.
7. I (or my girlfriend) would feel insulted if my boyfriend (or if I) brought up the subject of using birth control.
8. I would (or do) feel embarrassed about using birth control (the pill, a diaphragm or condoms) because it would imply that I'm promiscuous or sexually loose.
9. I feel comfortable discussing sex with my parents.
10. My friends and I seldom if ever talk about sex or birth control.
11. I sometimes worry that my feelings about sex are not normal.
12. I couldn't discuss birth control with my boyfriend/girlfriend without feeling terribly uncomfortable.
13. I consider my sexual feelings pretty typical of people my age.
14. I feel it's wrong for me to have sex.

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[*] The 14-item SSC scale was completed by 63 other NYU undergraduates for the purpose of determining its distribution and reliability (that is, how strongly its items intercorrelate). The mean score on the scale was 7.08, with a variance of 2.24. Scores ranged from 2.64 to 9.64. The distribution of scores was negatively skewed (skewness = -0.624) and leptokurtic (kurtosis = -0.060). Reliability was computed using Cronbach's alpha, which was found to be 0.90, indicating that the scale had high internal consistency.

[†] Mean SSC score for 14–16-year-olds is 5.75; for 17–19-year-olds it is 6.75; age-group comparison for SSC scores, $t(117) = 2.86$, $p < 0.01$.

[‡] Birth control methods: condom (rubber), birth control pills, diaphragm. IUD, contraceptive sponge, withdrawal and other. Reasons for not using contraceptive: believed pregnancy unlikely because I was too young; believed pregnancy unlikely because of time of the month; did not expect to have sex; partner objected to it; believed birth control was wrong; believed birth control was dangerous; did not know about birth control; could not get birth control; other reason (please specify).

[§] SSC score correlation coefficients were as follows: for frequency of using birth control, $r = 0.37$, $p < 0.01$; birth control used during first intercourse, $r = 0.07$, $p < 0.025$; birth control used during most recent intercourse, $r = 0.32$, $p < 0.01$. Erotophobia scale correlation coefficients were as follows: for frequency of using birth control, $r = 0.10$, $p < 0.51$; birth control used during first intercourse, $r = 0.05$, $p < 0.74$; birth control used during most recent intercourse, $r = 0.03$, $p < 0.86$.

Table 2. Mean scores and standard deviations (S.D.) on SSC scale and SSC subscale[*] by contraceptive method used during most recent intercourse

Method	SSC scale	SSC subscale
Total (N=70)		
Mean	7.81	7.73
S.D.	1.05	1.09
Pill or diaphragm (N=22)		
Mean	8.48	8.24
S.D.	0.66	0.82
Condom or sponge (N=20)		
Mean	7.89	7.77
S.D.	1.06	1.23
Withdrawal (N=9)		
Mean	7.60	7.80
S.D.	1.04	0.89
No method (N=19)		
Mean	7.18	7.16
S.D.	1.13	1.19

[*] SSC scale with contraception items removed.

Although the age distribution in the university sample was positively skewed (most of the subjects were 18), the range was wide enough to allow age comparisons in SSC scores. A Pearson product-moment correlation confirmed that older participants had a more positive sexual self-concept than younger subjects. However, since contraceptive use increases with age, we could interpret the correlation between the SSC scale and contraceptive behavior to indicate simply that both are correlated with age. If that is the case, partialling age (removing its variance) from the SSC-contraception correlation would reduce that correlation to nonsignificance. When we computed a partial correlation though, we found the SSC scale to correlate even more strongly with frequency of contraceptive use and with use at most recent intercourse.[*]

We were also interested in whether choice of birth control method reflects sexual self-concept. Do people with more positive feelings about their own sexuality tend to select the more effective methods? And are the methods that require a prescription—and therefore the most forethought—favored by people with the highest SSC scores? To assess this, we divided the participants into four groups, according to the type of method they had used at most recent intercourse, the methods being distinguished by the amount of forethought required: those requiring a prescription (oral contraceptives and diaphragm; there were no IUD users in the group); those obtainable without a prescription, such as condoms and foam; withdrawal; and no method. A one-way analysis of variance (with four levels, for the four categories of methods) showed that SSC scale scores were strongly related to the method of choice. As Table 2 shows, the students who had used prescription contraceptive methods at last coitus exhibited the highest SSC scale scores, followed by those who had used nonprescription methods, then the withdrawal group and then the group who had used no method. The mean score for the subjects who had used prescription methods was significantly higher than the means for all the other groups. Scores for the nonprescription method users were marginally significantly higher than scores for either the withdrawal group or the nonusers. There was no significant difference between the nonusers and the withdrawal group—a finding that could be expected because neither behavior exhibits forethought.[†]

The fact that some of the scale items specifically concern birth control poses a serious challenge to the interpretation that the SSC scale can predict contraceptive practice. The reason is that an association between sexual self-concept and contraceptive use could represent nothing but the overlap in the content between the contraception-specific items and contraceptive practice. While the findings would not thus be completely trivialized, they would have to be interpreted to mean only that feelings about purchasing, using and discussing contraceptives correlate with birth control practice. Such a finding would be less useful than a determination that feelings about one's sexuality can predict contraceptive behavior.

To evaluate whether an overlap in content is responsible for the observed association, we removed the items concerning contraception, recomputed the scale means and reran the correlations between the reduced SSC scale and the contraceptive behavior variables. The subscale was quite similar to the overall scale in its distribution, although its internal consistency was substantially lower. It significantly predicted the same contraceptive-use variables as the complete scale and correlated positively with age. Thus, the predictive power of the original scale cannot be attributed solely to feelings about contraception. Scores on the reduced SSC scale also differed by method group.[‡] Mean scores for the subscale are shown in Table 2.

- Discriminant validity—Eighty students randomly chosen from the group of 149 NYU volunteers also completed the erotophobia construct, called the Sexual Opinion Survey (SOS). The two scales intercorrelated in the low positive range ($r = 0.28$, $p < 0.01$) indicating that erotophobia and sexual self-concept are related but probably do not measure the same psychological concept.

Discussion

Even though the samples on which we tested the SSC scale cannot be regarded as representative of U.S. teenagers, the data we obtained can answer some basic questions about the utility of sexual self-concept for the study of contraceptive behavior among young people. First, the results of the correlational analyses suggest that the construct does predict several aspects of contraceptive use—general consistency, use at most recent intercourse and method choice. Its predictive power is not attributable to the association of both sexual self-concept and contraceptive use with age. It does not predict use at first intercourse, confirming the previous finding that such use is highly subject to situational constraints[16] and is not as reflective of individual differences as are consistency of use, use at most recent intercourse and method choice.

Because the present study tested only correlations, inferences about causality must be drawn cautiously. We can, however, probably rule out the possibility that contraceptive use is the cause of sexual self-concept. But the question of causality cannot be completely settled until, in a field experiment, sexual self-concept is manipulated and its effects on contraceptive behavior are measured. Such an examination could be made in the context of a broader study of the effects of counseling or sex education on contraceptive behavior and would constitute a valuable addition to the study of the psychology of contraceptive use.

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[*] SSC score correlation coefficients for age, $r = 0.28$, $p < 0.001$. Correlation coefficients for SSC scale (partialling out age) and frequency of using birth control, $r = 0.41$ $p < 0.001$; birth control use at most recent intercourse, $r = 0.38$ $p < 0.001$.

[†] Analysis of variance between SSC score and four categories of method showed $F(3,65) = 6.0$, $p < 0.001$. Prescription method users vs. all others: $t \geq 2.15$, $p < 0.04$; nonprescription method users vs. withdrawal or nonusers, $t \geq 1.93$, $p < 0.06$; withdrawal vs. nonusers, $t < 1.0$.

[‡] The mean score on the SSC subscale was 7.05, with a standard deviation of 1.50. Scores ranged from 2.30 to 9.60, and Cronbach's alpha was 0.75. Correlation coefficients for the reduced SSC scale and: frequency of using birth control, $r = 0.26$, $p < 0.03$; use of birth control at most recent intercourse, $r = 0.27$, $p < 0.03$; age, $r = 0.27$, $p < 0.001$. Analysis of variance between reduced SSC scale and four categories of methods $F(3,65) = 3.22$, $p < 0.03$.

The second question to be answered about sexual self-concept is whether it develops as an individual ages. In two very different groups of young people (the 120 Pennsylvania high school students and the 149 NYU undergraduates), SSC scores were observed to increase with age. This finding suggests that sexual self-concept may represent an essentially developmental construct, a shallow and changing psychological characteristic rather than a deep and enduring disposition. However, an alternative interpretation is that cohort differences could account for these age-group variations. One study has found significant differences in levels of sex guilt, as measured by Mosher's construct, between cohorts of college students tested in 1973–1974, 1978–1979 and 1983–1984; the most recent cohort showed an increase in sex guilt, a decrease in sexual activity and an increase in the use of effective contraceptives.[17] Only a longitudinal study, in which the SSC scale is given to the same teenagers at various times, can determine whether a developmental progression or cohort differences underlie the age-group differences revealed in the present data. This is a worthwhile question for future research.

Another question worth exploring is why erotophobia failed to correlate with contraceptive behavior. Presumably, in a sample with greater variance in contraceptive practice (that is, more nonuse), we might replicate the results of a study that found that erotophobia scores predicted a wide range of contraception-related behaviors, such as information seeking and use.[18]

One obvious next research step is to compare sexual self-concept with sex guilt (using Mosher's construct), as it was compared with erotophobia in the present research. This will help to establish further the discriminant validity of the SSC scale and its predictive power in comparison with that of the established explanatory constructs measuring sex guilt and erotophobia. Current research is under way to address this question.

The distribution of sexual experience found in the university sample—particularly, the large number of sexually inexperienced students—clearly is different from the distribution reported in national probability sample surveys of U.S. adolescents. This factor indicates that our sample is not representative of the population of U.S. college students. The distribution of experience in our sample does correspond to that reported in another study similarly based on undergraduate subjects who understood the nature of the research before they volunteered to participate.[19] Informing potential subjects of the study's nature is almost certain to exclude from the sample people who would prefer not to reveal (even anonymously) their sexual behavior and contraceptive practices, and it probably accounts for the high proportion of sexually inexperienced participants (nearly 50 percent) and the small proportion who seldom or never use contraceptives. Nevertheless, the fact that the experimental hypotheses were confirmed despite the relatively small number of nonusers is testimony to the robustness of the hypotheses. It suggests that with a sample more representative of the U.S. population, the observed differences between users and nonusers would be greater. Clearly, it would be desirable for future research efforts to replicate the present study with a more representative sample and to compare the three conceptually related scales (SSC, erotophobia and sex guilt) using the same sample.

However preliminary, our results are both suggestive and instructive. Taken together, the findings that sexual self-concept is strongly correlated with contraceptive behavior and that SSC scores increase with age imply that sexually active younger teenagers are poorer users of birth control because of their lower sexual self-concept. This conclusion, in turn, suggests that counseling and sex education may help improve contraceptive practice among sexually active teenagers by addressing their views of their own sexuality.

Many sexuality education courses probably already do this, by focusing on the social and psychological issues surrounding sexuality in addition to providing information about physiology. Perhaps the uneven, sometimes disappointing effects of sexuality education on the teenage pregnancy rate[20] partly reflect that while some sexuality education curricula help students come to grips with the larger issues surrounding their personal development, others focus on just the basic facts about human reproduction. This would confirm our belief that mere information is not enough, that teenagers need more than information about reproduction in order to translate knowledge into worthwhile action. One direction for future research could be to examine the effects of sexuality education on sexual self-concept in order to determine, first, whether having such a course produces a more positive sexual self-concept and, second, whether different kinds of sexuality education produce different psychological results, as well as different levels of knowledge.

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Linkages Between Sexual Activity And Alcohol and Drug Use Among American Adolescents

By Frank L. Mott and R. Jean Haurin

Summary

Among a nationally representative cohort of young men and women reaching maturity in the late 1970s and early 1980s, over three-fourths of males and half of females had sexual intercourse by age 19, and a substantial minority used marijuana prior to their 16th birthday. However, in most cases, much smaller proportions began weekly alcohol consumption, tried drugs besides marijuana or experienced sexual intercourse before age 16. Males are generally more likely to have begun participating in these activities, at all ages, than are females. Only modest percentages of youths participated in more than one activity at early ages or engaged in them in close proximity to one another. Indeed, only by age 19 did even one-third of the young women engage in sexual intercourse and use both marijuana and alcohol. In fact, the norm for girls under 17 and for boys under 16 is either abstention or participation in just one activity. Although younger blacks are more likely to have initiated sexual activity than are their white or Hispanic counterparts, young minority women are less likely than white women to have begun using alcohol or marijuana. Young people who use one or more substances by a given age are more likely than those who do not to become sexually active within a year. However, marijuana use at a young age appears to be more strongly linked to subsequent sexual initiation than is regular monthly alcohol use. The converse is also true: Boys and girls who become sexually active are much more likely than those who abstain to begin using alcohol or marijuana within a year, although the linkage is stronger for girls than for boys. In addition, the link between sexual activity and marijuana use appears stronger than the link between sexual activity and alcohol use. Nonetheless, young people under age 16 who begin using marijuana or alcohol before first intercourse are more likely *not* to have intercourse over the following year than they are to do so.

"Heavier alcohol use may represent a somewhat more adverse or deviant activity, and as such may be expected to show a closer link with earlier sexual activity than does more casual alcohol use."

Introduction

Adolescent substance use and its possible linkage with other adolescent behaviors (such as sexual intercourse) may be the single most important issue on any social policy agenda involving contemporary youth. The consequences of adolescent problem behavior extend not only to the individuals whose educational and occupational prospects may be adversely affected, but also to the social institutions that must deal with the potentially harmful effects. In spite of the critical importance of this issue, nationally representative data describing adolescent activities and their potential linkages are quite limited.

A common approach to the study of adolescent activities is to view the period of adolescence as a time of transition and uncertainty.[1] During this developmental period, youth generally make their first attempts at acquiring adult status by engaging in quasi-adult activities. Sexual activity and alcohol consumption are considered to be examples of problem behavior insofar as the transition to these adult activities is too early relative to social norms. This perspective has been criticized, however, for too closely tying the definition of deviance to normative judgments.[2] Few studies have actually established the statistical norms, much less the social norms, defining when it is appropriate to begin such activities, especially as these norms may differ by gender, social class and race or ethnicity.[3]

The prevalence and timing of these activities and the social norms that constrain them are continually changing, as a result of factors not easily studied. For example, use of a particular substance may have waxed or waned over time, depending on the availability of the substance, legal restrictions, fashion and novelty. In addition, knowledge has grown over time regarding the health implications of activities such as cigarette smoking, alcohol use and drug-taking. Age restrictions on alcohol consumption have changed as well, reflecting social concern over the acceptability of youthful imbibing. Sexual mores have also changed, in part because of changes in contraceptive technology and in part because of health risks related to sexual activity. A feature of that evolution has been the erosion of the double standard that long proscribed women from engaging in activities that were considered acceptable for men.

The confounding problems presented by

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ongoing social change create difficulties not only in causal modeling but also in the production of simple descriptive generalizations from cross-sectional or quasi-longitudinal data. Much previous research has been limited both by the time period and by the special populations considered for study. For example, some studies[4] have been limited to high school samples which can lead to the underestimation of substance abuse among adolescents, since heavy users may be more likely to drop out of school at an early age. Reliance on mostly urban samples[5] can lead to an overestimation of prevalence within the general population. Furthermore, work on the developmental sequencing of drug and alcohol use has in the past relied on data from respondents asked to recall their behavior after long periods of time had passed.[6] While more recent work addresses this issue through the incorporation of longitudinal data covering shorter intervals,[7] it is still subject to the other limitations noted above.

Despite such variability, however, several consistent findings are relevant here. First, the levels of alcohol and marijuana consumption are higher among males than among females,[8] and the age at which young men generally begin to use cigarettes, alcohol and other drugs is earlier than that for young women.[9] In addition, male adolescents report levels of sexual activity and lower ages at initiation of sexual intercourse than do young women.[10] Although most evidence points to a narrowing over time of gender differences for both sexual experience and substance use,[11] there is also some support for the idea that young men and women attach different meanings to sexual experience,[12] and factors that influence substance use show different patterns for males and females.[13] Finally, while the effects of race and poverty have not been simultaneously examined, studies that show data separately by race have indicated that blacks report somewhat lower levels of drug use than do whites but higher rates of sexual experience.[14] Studies of substance use and of sexual activity among Hispanics are uncommon, because of the lack of adequate data, and are difficult to interpret, because of the heterogeneity of the Hispanic population.

Although researchers have been concerned with the intensity and frequency of adolescent drug use, and certainly with its health impact, their more general focus has been on the timing of initiation of various activities. Such research has often taken the approach that once a youth has committed his or her first "deviant" act, he or she is at greater risk of committing another.[15] By this logic, the earlier one starts a certain behavior, the more likely that person is to engage in it subsequently. Some researchers have even suggested that once a youth has committed his or her first deviant act, the personal, social and environmental factors that might reduce the risk of repeated misbehavior exercise less influence. Thus, the correlations commonly found between different types of deviant behavior among adolescents are considered by some to represent a sort of syndrome of deviance.[16]

The progression of adolescent problem behavior is often viewed as a developmental process. The model most frequently shown to fit the available data[17] involves a sequential progression from the use of alcohol to the use of cigarettes, then to marijuana and on to "hard" drugs. Others have studied the extent to which the process is sequential and cumulative (in the sense that previous types of behavior are not discarded as others are begun).[18] While researchers have more recently used longitudinal data to examine the causal connections between various forms of drug use,[19] this line of study is still bereft of theoretical foundations and frequently loses sight of the fact that drug use often peaks in the late teens and declines in young adulthood as young people achieve more clearly defined adult statuses through marriage, parenthood and employment.

The most important objective of this research is to describe, in some detail, the pattern of early substance use among various subsets of youths who represent the national population of adolescents. Based on our reading of other research, we anticipate observing certain systematic differences by gender and race, which we will be able to document in a somewhat better manner than have most other studies. We will also directly address the issue of temporal linkages between the various behaviors, as well as whether there is reason to believe that any substantial proportion of young people belong to a "deviant" subset whose regular behavior systematically encompasses involvement in all of the activities that we examine. We also hypothesize that the various activities—marijuana use, alcohol consumption and early sexual activity—are not normatively equivalent for all adolescents: To the extent that use of alcohol or marijuana or participation in sexual activity are more prevalent among certain subgroups, they may represent less deviant activity. It may thus be reasonable to conclude that for such young people, linkages between involvement in the various activities described herein would be weaker.

Because of the general lack of nationally representative survey data on the various activities among all youths and among different race and gender groups, one major objective of our study is to describe in some detail the ways in which young black, white and Hispanic men and women differ in their sexual experience and utilization of alcohol and marijuana at young ages; we also seek to examine whether and how these patterns may be contrary to more general preconceptions of adolescent misconduct. Causal links between early substance use and early sexual activity are inherently complex; resolution of the causality problem is well beyond the scope of our research. Indeed, it is fair to conclude that the causal links between marijuana use, alcohol consumption and early sexual initiation cannot be clarified within the constraints imposed by current approaches to data collection and research methodology in the social sciences.

This article describes the overt relationship over time of early substance use and early sexual activity. Although we compute probabilities for the temporal order of particular events (for example, sexual initiation following alcohol and marijuana use), the reader should be cautioned that we do not mean to imply causality between the earlier and later events. Nevertheless, a careful description of the links between activities among certain subgroups of young people can provide important insights into adolescent problem behavior. From a policy perspective, this research can define more precisely the groups who are at risk of beginning certain potentially harmful activities because they have already followed certain behavior paths. Statistics of this kind can be quite useful for defining aggregate behavior, but they are of less value for predicting an individual's actions.

Methodology

The analysis is based on data from a national cohort of young men and women who reached maturity in the late 1970s and early 1980s. We use retrospective data reported by respondents to the National Longitudinal Survey of Youth Labor Market Experience (NLSY) who were 19 or older as of the end of 1983. This sample, first interviewed in 1979, initially included a nationally representative group of approximately 12,600 young men and women 14–22 years of age. As of 1983, the

Table 1. Cumulative percentages of adolescents who participated in selected activities prior to given ages, by gender and race/ethnicity

Race/ ethnicity and age	Males					Females				
	Sexual inter-course	Monthly alcohol use*	Weekly alcohol use*	Mari-juana use	Other drug use	Sexual inter-course	Monthly alcohol use*	Weekly alcohol use*	Mari-juana use	Other drug use
Total										
14	10.2	5.4	1.7	12.0	2.0	3.3	2.4	0.7	7.7	1.3
15	17.2	9.6	3.2	19.9	3.4	8.4	4.5	1.7	14.6	2.7
16	29.1	19.2	7.2	31.4	5.8	17.6	9.2	3.4	24.5	5.5
17	48.4	38.0	15.1	43.0	10.4	33.2	22.3	6.7	34.6	9.0
18	64.8	54.1	25.2	53.0	15.6	50.9	35.2	11.7	43.8	12.8
19	78.2	77.8	49.4	61.5	21.6	67.6	59.7	28.0	51.2	16.5
N	5,396	5,444	5,434	5,410	5,389	5,450	5,474	5,471	5,464	5,430
White										
14	6.8	5.5	1.8	12.0	2.3	3.2	2.7	0.8	8.4	1.5
15	12.5	9.7	3.2	19.8	3.7	7.9	5.0	1.9	15.7	3.1
16	23.5	19.7	7.3	31.8	6.3	16.6	9.9	3.8	26.7	6.4
17	43.3	39.7	15.6	43.9	11.6	31.3	24.0	7.2	37.7	10.6
18	60.8	55.3	25.6	53.9	17.3	49.2	35.2	12.5	47.4	14.9
19	75.5	80.3	51.7	62.6	23.9	66.2	59.7	30.6	54.8	19.0
N	3,219	3,246	3,242	3,224	3,209	3,230	3,244	3,242	3,236	3,211
Black										
14	30.4	4.8	1.9	11.8	0.6	4.9	1.1	0.4	4.3	0.3
15	44.3	8.2	3.6	20.4	1.4	12.5	2.3	0.6	9.5	0.4
16	61.4	15.6	6.2	30.3	2.2	24.2	5.5	1.5	15.0	1.0
17	78.6	29.7	12.8	39.3	3.8	45.7	14.2	4.1	21.7	1.7
18	87.3	46.7	23.4	50.1	6.2	64.2	24.6	8.4	29.4	2.9
19	93.5	65.7	38.3	58.6	9.6	79.1	45.2	16.8	37.1	5.0
N	1,362	1,376	1,375	1,364	1,362	1,365	1,372	1,371	1,371	1,366
Hispanic										
14	9.9	6.1	0.9	12.5	1.6	2.0	1.7	0.4	5.2	0.9
15	18.3	10.8	3.2	20.4	3.4	6.1	3.6	1.2	11.5	2.6
16	31.8	10.6	6.7	29.3	5.9	15.2	8.5	2.7	17.9	4.2
17	49.9	34.6	13.8	39.2	9.8	28.5	17.4	5.6	24.6	6.0
18	68.0	53.5	24.1	47.8	13.6	42.3	28.1	9.0	29.9	8.0
19	80.3	71.5	43.4	53.7	17.6	58.4	46.4	18.3	35.7	9.4
N	815	822	817	822	818	855	858	858	857	853

Note: In this and subsequent tables, sample consists of respondents interviewed in 1983 and 1984 who were at least 19 years of age in 1983, and percentages are weighted to represent the U.S. population.

*For monthly alcohol use, respondents who had consumed alcohol less than monthly were grouped with those who never used alcohol; similarly, in the analysis of weekly alcohol use, those who had consumed alcohol less than weekly were grouped with those who had never used it.

approximately 12,200 respondents still being interviewed (over 95 percent of the original sample) were between the ages of 18 and 26. We limited the sample used in this article to those who were at least 19 as of that survey date so that we could examine the pattern of adolescent behavior up to age 19. The sample is approximately evenly divided between males and females and includes an overrepresentation of blacks, Hispanics and economically disadvantaged whites. Questions on drug use were asked in 1984, while those involving alcohol were posed in 1983 and those involving age at first intercourse were asked in both years. (The NLSY data shown in subsequent tables are weighted to represent the U.S. population.)

Our results focus on the cumulative proportions of males and females who first used various substances or first engaged in sexual intercourse by their 19th birthday. In doing so, we effectively aggregate young people who were 13 in 1970 with those who were 13 in 1977, and so on. To the extent that the young people's likelihood of undertaking certain activities has changed in significant ways in recent years, as several researchers have suggested,[20] our grouped statistics may mask divergent temporal patterns.

The inherent complexity of the issues considered in this research is confounded by the fact that the adolescent behavior of interest is by no means either universally illegal or necessarily harmful in all cases. Clearly, sexual activity is not socially proscribed; it is frowned upon only under certain circumstances, one of which is that of relative youth. Even here, historical norms have certainly weakened in recent years, and the dominant reasons given for delaying sexual activity until adulthood pertain increasingly to its connection with pregnancy and with disease. In many respects, the consumption of alcohol falls into the same ambiguous category. It is socially proscribed for adolescents but is generally acceptable (subject to certain constraints) for adults. This, of course, is reflected in the statistics on alcohol use, which show that alcohol consumption increases substantially at age 18 and, as we will show, the relationship between the use of alcohol and the other activities described in this research weakens at that time. Only marijuana use and other drug use may be generalized as activities that are totally illegal within our society. For this reason, one might anticipate that variations in the links between sexual activity and alcohol and marijuana usage will reflect fundamental differences in the ways in which these activities are perceived within society as a whole, not just in the youth subculture. These differences in perception may also have some effect on the willingness of adolescents and young adults to acknowledge having ever practiced a particular behavior, as well as having practiced it at a particular age.

Our primary interest is in the patterns of early sexual activity, alcohol use and various forms of drug use among the NLSY respondents. Data on age at first intercourse are drawn from the 1984 survey round. Regarding alcohol consumption, participants were asked: "How old were you when you first began drinking alcoholic beverages on a regular basis (that is, at least once or twice a month)?" and "How old were you when you first began drinking alcoholic beverages at least once or twice a week?" A question on ever-use of alcohol was also asked (although respondents were not queried on the age at which they first used alcohol); however, we chose not to use it because of the virtually universal positive response to the question. The issue of which question is most appropriate is clearly important, since response patterns are quite sensitive to the frequency suggested by the question. Indeed, our results suggest usage patterns that are in some instances different from those found in previous studies, in part undoubtedly reflecting differences in the probes for frequency of alcohol consumption. The typical pattern, showing the use of licit substances preceding the use of illicit substances,[21] is probably sensitive to (and may well be an artifact of) the question being asked—ever-use compared with more intensive patterns of use. This is, of course, an oversimplification, as patterns of substance use have been found to be closely linked to age at initiation[22] and, to some extent, to gender.[23]

For this research, we had the option of examining weekly or monthly alcohol consumption, each of which may have different significance when gauged from a social, psychological or physiological perspective. In several places in this article, we present results based on both concepts; differences may well appear, depending on the definition one uses, and the reasons for these differences may not be entirely obvious. For example, there may be variations by gender in young people's ability to recall patterns of previous alcohol consumption accurately: It may be that young women remember a certain quantity of alcohol in the distant past as having been more than it really was, and that young men recall greater consumption as having been less than it really was. In any event, it is useful to be reminded in analyses of this type that all reported patterns of behavior depend on recollection, which is subject to error and can be colored by subsequent experiences or personal values.

All of the items on drug use are from the 1984 survey round of the NLSY and refer to the first time a young man or woman ever used a particular substance. Respondents were asked whether they had ever tried a substance; if the response was affirmative, they were asked how old they were when they first used it. A series of probes was used to uncover the respondents' experience with a lengthy list of substances—amphetamines, barbiturates, cocaine, heroin, inhalants, marijuana, psychedelics, tranquilizers and other narcotics. In the case of marijuana, respondents were asked the month and year of first use, or their age at first use if they did not know the month and year. In addition, with regard to all drugs except marijuana, respondents were asked whether they had ever used any of the drugs on their own, "without a doctor telling you to take them, to get high or enjoy the feeling."

Entry into Various Activities

Table 1 shows the age patterns of entry into a variety of activities for white, black and Hispanic males and females. In general, adolescent males are more likely than female teenagers to have ever begun having intercourse at younger ages and remain more likely to have engaged in intercourse at later ages. Such differences are especially great among black teenagers.

Younger black adolescent males are substantially more likely than comparable whites or Hispanics to have had sexual intercourse; among females, the differentials are not as great. Levels of sexual activity among Hispanic young men are generally slightly higher than among their white counterparts, whereas rates among Hispanic young women are slightly lower than those among the young whites. For both males and females, levels of sexual activity among Hispanics are well below those of blacks, at all ages. Overall, however, 68 percent of females and 78 percent of males surveyed in the NLSY have had sexual intercourse before age 19.

As noted earlier, the pattern of entry into alcohol use is very sensitive to the definition utilized. Virtually all respondents have ever had a drink (95.3 percent of the cohort by 1983), which is consistent with the findings of other research.[24] The proportions who used alcohol more frequently at various ages are much lower: Nineteen percent of young men report that they used alcohol on a regular monthly basis by their 16th birthday, for example, whereas only seven percent say that they consumed alcohol on a regular weekly basis by that age. Comparable proportions among females are nine percent and three percent, respectively.

Thus, any analyses of early alcohol use, its links with other activities and the potential causal connections necessitate important subjective judgments regarding what constitutes significant alcohol consumption. Under existing norms, for example, a given level of alcohol consumption may represent more of a deviant activity for young women than for young men, since much smaller proportions of women than of men imbibe at young ages.[25] This line of reasoning might suggest stronger links between early alcohol use and other nonnormative activities among young women than among young men.

To the extent that there are significant racial or ethnic variations in patterns of substance use among adolescents, it is possible that alcohol use has a different social meaning, as well as different predictive implications, for whites than for blacks or Hispanics. For example, Table 1 offers modest support for the notion that alcohol use is more prevalent among white adolescents than among blacks or Hispanics. Except among the youngest males, higher proportions of whites than of blacks or Hispanics consumed alcohol, either monthly or weekly; the differences are small among boys, but are more substantial among girls. Our results here parallel black-white differentials reported elsewhere.[26] According to the line of reasoning in the preceding paragraph, we might anticipate that stronger links will appear between a given level of alcohol use and other deviant activities among minority girls than among white girls.

Table 1 also shows the age-related initiation patterns for marijuana and for other types of drugs. Respondents were asked about a much larger number of substances than are discussed in this article; their replies highlight the enormous range of drug-related activities in which at least some have engaged, although only small percentages of young people acknowledge having used many of the potentially riskier drugs, such as cocaine or heroin.[*] A substantial proportion of adolescents indicate that they used marijuana at some time: About one-third of the boys and one-quarter of the girls used marijauna for the first time before their 16th birthday, a majority of boys first used it before their 18th birthday and a majority of girls first did so before their 19th birthday.[†] There appear

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[*] It should be emphasized that this information is based on retrospective self-reports. Thus, among older respondents, the reports focus on life-cycle points that may be a number of years removed from the 1984 survey date. In addition, the validity of the responses, which were given verbally to an interviewer, is subject to conscious and unconscious error. It is not unlikely that response patterns for more deviant behavior may be subject to some undefined level of deliberate misreporting, which could lead to artificially deflated (or inflated) levels of reported substance abuse for at least some drugs. Recently completed research indicates that substance use is indeed underreported, particularly by women and minorities. (See: S. M. Mensch and D. B. Kandel, "Underreporting of Substance Use in a National Longitudinal Youth Cohort: Individual and Interviewer Effects," *Public Opinion Quarterly*, 52:100, 1988.) However, these results suggest that underreporting is most pronounced among young people who were probably light users. If so, such underreporting would likely have only modest consequences for our analytical thesis (i.e., that young people using a substance are more likely than those not doing so to use several substances or engage in early sexual activity).

[†] Our data on ever-use of marijuana do not seem to differ in any major way from statistics reported for high school seniors who were graduating in the late 1970s. (See: National Institute on Drug Abuse, *Student Drug Use in America: 1975–1982*, Rockville, Md., 1983.) More detailed information on other kinds of drug use for the adolescents in this sample can be found in F. L. Mott and R. J. Haurin, "The Interrelatedness of Age at First Intercourse, Early Pregnancy, Alcohol and Drug Use Among American Adolescents," paper presented at the annual meeting of the Population Association of America, Chicago, Apr. 29–May 2, 1987.

Table 2. Percentage distribution of adolescents, by whether they engaged in various activities, according to gender and age prior to which activity was commenced

Gender and age	Activity*								
	None	Sex only	Alcohol use only	Marijuana use only	Sex & alcohol use	Sex & marijuana use	Alcohol & marijuana use	All three	Total
Males									
14	78.3	6.4	2.4	7.7	0.7	2.2	1.3	0.9	100.0
15	66.2	8.9	3.5	10.9	1.5	4.5	2.3	2.3	100.0
16	48.5	11.7	5.0	12.9	3.3	7.8	4.4	6.4	100.0
17	28.7	13.2	7.6	8.6	7.4	11.5	6.6	16.5	100.0
18	16.9	11.9	7.0	5.4	11.1	11.8	5.9	30.1	100.0
19	7.9	7.2	7.0	1.4	16.4	5.8	5.5	48.8	100.0
Females									
14	89.2	1.9	1.1	5.8	0.2	0.7	0.7	0.4	100.0
15	79.6	4.2	1.3	9.2	0.6	2.5	1.6	1.0	100.0
16	64.5	7.9	2.1	13.0	1.2	5.5	3.0	2.7	100.0
17	45.9	12.4	4.5	10.2	2.8	9.4	6.5	8.4	100.0
18	30.2	15.6	5.2	7.7	5.5	11.8	6.1	17.9	100.0
19	15.4	13.4	8.0	2.5	12.3	9.4	6.7	32.4	100.0

*Activities are ever-use of marijuana, sexual intercourse and monthly consumption of alcohol.

to be no major differences in marijuana use between black, white and Hispanic young men. However, among young women at all ages, substantially larger proportions of whites are likely to have used marijuana.

A summary cumulative distribution of the proportions (by age) who used any drug other than marijuana is also included in Table 1. It shows that by age 16, about six percent of young men and women report having used a drug other than marijuana. In general, as of age 16, the level of other drug use is higher among males than among females for all drugs, with the possible exception of amphetamines, which are more likely to be used by females for weight reduction.[27] At younger ages, only very small proportions of adolescents used a drug other than marijuana. It may be fair to generalize, for both boys and girls, that the level of use of the various substances is greatest among white youths, lowest among blacks and intermediate among Hispanics. (However, care must be taken when generalizing about Hispanics, since they represent an extraordinarily heterogeneous cultural mix.)

We now examine some of the overt linkages between these types of behavior.* Table 2 shows the percentages of young men and women who were involved in none, one or several of the activities described above before reaching various ages.† Eighty-nine percent of the young women and 78 percent of the young men say that they had not engaged in any of these activities by their 14th birthday. These proportions decline steadily, to 15 percent and eight percent by the respondents' 19th birthday. Among women at the younger ages, the most common patterns of practice (aside from total noninvolvement) are to have only smoked marijuana or to have only had sexual intercourse. It is of some interest to note that at the intermediate ages (16 and 17), relatively substantial proportions of young women acknowledge that they have used marijuana or alcohol (or both) but have not yet had sex. On the other hand, small but comparatively sizable proportions have had sex but do not admit having used drugs or alcohol. Indeed, by age 17, only eight percent of young women have ever used both marijuana and alcohol *and* have ever had sex. It is only by age 19 that we find a substantial proportion of young women (about one-third) who have ever engaged in all of these activities, with another one-fifth reporting that they have had sexual intercourse and have used either marijuana or alcohol. (We would like to emphasize that these statistics refer to ever-use by a certain age. Certain types of behavior did not necessarily occur in concert at a given age.)

The general pattern of progression for boys is quite similar to that for girls. However, because boys frequently begin such activities at earlier ages than girls, larger proportions of boys than of girls engaged in several types of behavior at early ages. Indeed, levels of intercourse, alcohol consumption and drug use among boys by age 16 are similar to those seen among girls by age 17. An examination of patterns among separate racial and ethnic groups (not shown) suggests a much greater tendency for minority boys and girls to have engaged only in sexual intercourse or to have had sex and to have used either alcohol or marijuana (but not both). White boys and girls, on the other hand, are much more likely to have had intercourse and to have used both alcohol and marijuana. Once again, the most important generalization that can be made here is that the norm for girls younger than 17 and for boys younger than 16 is either abstention or participation in only one of the activities examined here.

In the following three tables, we move from examining overall experience to presenting initiation rates, which represent the likelihood that a youth will have undertaken a certain type of behavior for the first time at a particular age. Thus, the sexual initiation rate for 15-year-old boys is the percentage of 14-year-old virgin boys who will become sexually active for the first time at age 15.

Table 3 presents the rates of initiation into each of the three activities, by gender and by race or ethnicity. Focusing first on the overall totals for males and females, we see that the rate of sexual initiation increases at all ages up to 18, as does the use of alcohol on both a weekly and a monthly basis. The initial use of marijuana also continues to increase through age 18 for boys, but peaks at age 17 for girls. The rates at which boys begin various activities are higher than those for girls at all ages, a pattern that is generally consistent with evidence reported elsewhere.[28] (Actual rates vary across studies, of course, reflecting differences in definitions and in sample designs.)

As other studies have observed, the initiation rate for alcohol consumption (both monthly and weekly) rises sharply between ages 17 and 18, reflecting the fact that in the late 1970s and early 1980s, the consumption of alcohol typically became legal at age 18. Rates of marijuana initiation reach relatively high levels at rather youthful ages, but do not climb suddenly at a specific age, as is the case with alcohol. Although data on cigarette consumption are not included in the table, they support the notion that smoking becomes a problem at a much earlier age than alcohol use. From a health perspective, it would appear that programs aimed at preventing or reducing smoking (as well as other substance use) should be aimed at younger teenagers if they are to be maximally effective.[29]

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*A more extensive examination of these links, including the early use of other drugs, may be obtained from the authors.

†The data on sexual activity, which have been reported elsewhere (see: W. Marsiglio and F. L. Mott, "The Impact of Sex Education on Sexual Activity, Contraceptive Use and Premarital Pregnancy Among American Teenagers," *Family Planning Perspectives*, **18**:151, 1986), show slightly lower levels of sexual activity at younger ages than have been found in some earlier research. (See, for example: J. R. Kahn, W. D. Kalsbeek and S. L. Hofferth, "National Estimates of Teenage Sexual Activity: Evaluating the Comparability of Three National Surveys," *Demography*, **25**:189, 1988.)

Table 3 also indicates, rather dramatically, the degree to which initiation rates vary between white, black and Hispanic young people. Focusing first on the girls, we see that younger blacks are substantially more likely to have initiated sexual activity than are their white or Hispanic counterparts. On the other hand, they are substantially less likely to have begun alcohol consumption or marijuana use than are white youths and, more often than not, are less likely to have initiated these activities than are Hispanic young women. Although it is less pronounced, the same pattern is also frequently seen among the boys. This finding suggests that generalizations across racial or ethnic groups regarding adolescent sexual activity or substance use are of limited utility. More important, it also clearly indicates that to the extent that there may be causal linkages between early substance use and sexual activity, these are not universal and undoubtedly vary between blacks, whites and Hispanics.

We can also say on the basis of these results that generalizations regarding Hispanic youth (about 60 percent of whom are of Mexican-American origin) are particularly difficult to arrive at. Among both Hispanic boys and Hispanic girls, the pattern of early sexual activity is more similar to that of whites than to that of black youth. The pattern of alcohol and marijuana use among young Hispanic women, however, more closely approximates the pattern observed among blacks than that among whites. For young Hispanic men, the pattern is more erratic, and no cross-ethnic generalizations can be made.

The data in Table 4 (see page 132) bring sexual activity, alcohol use and marijuana use into closer temporal proximity. For adolescents who were virgins prior to a particular age, the table presents the probability that they would initiate intercourse at that age, according to whether they initiated alcohol use (on a monthly basis) or marijuana use (or both) at the immediately *preceding* age. The data suggest that while boys overall are more likely to initiate sexual intercourse at all ages than are girls, the pattern is erratic. The higher overall initiation rates among boys reflect in part the greater likelihood that boys who have not used either alcohol or marijuana will become sexually active. When one examines gender differences in sexual initiation for young people who have used alcohol or marijuana, the pattern is consistent with the notion, expressed earlier, that young women who use substances at earlier ages may be following less normative behavior paths than their male counterparts, and thus are more likely to engage in the full spectrum of nonnormative activities. Indeed, when one examines the linkages between alcohol or marijuana use (or both) among young women and men at the various ages between 14 and 18, one finds that in nine of the 15 age categories shown in Table 4, sexual initiation rates are higher among the females than among the males.

The results also suggest that, among both boys and girls and at all but the very youngest ages, marijuana use and subsequent sexual initiation appear to be more strongly linked than are regular monthly alcohol use and subsequent sexual activity. An important caveat to this finding is that it is contingent on the definition of alcohol use. If one switches the definition to weekly alcohol use, the relationship is reversed, with weekly alcohol consumption having a stronger link with subsequent sexual activity than ever-use of marijuana. This, of course, further reinforces the point that the way in which substance use is defined is of fundamental importance in interpreting research results in this area. In this instance, heavier alcohol use may represent a somewhat more adverse or deviant activity, and as such may be expected to show a closer link with earlier sexual activity than does more casual alcohol use. Heavy alcohol use may well be considered less acceptable behavior than casual marijuana use in the youth subculture; its relationship with early sexual activity may thus be anticipated to be stronger than the link between casual marijuana use and sexual activity, to the extent that the thesis of linked behavior patterns is supportable. Perhaps the single most important generalization that can be made from Table 4 is that youths who begin alcohol or drug use at a given age are, in virtually all instances, more likely than their counterparts who abstain from alcohol or drug use to initiate sexual intercourse soon thereafter.

Table 3. Among adolescents who had not had intercourse or used alcohol or marijuana prior to a given age, probability of initiating each behavior at that age, by gender and race/ethnicity

Gender, race/ ethnicity and age	Sexual intercourse	Weekly alcohol use	Monthly alcohol use	Marijuana use
MALES				
Total				
14	0.078	0.015	0.044	0.089
15	0.145	0.040	0.106	0.144
16	0.272	0.085	0.233	0.169
17	0.318	0.119	0.259	0.175
18	0.381	0.324	0.518	0.180
White				
14	0.061	0.014	0.045	0.088
15	0.126	0.043	0.110	0.150
16	0.258	0.089	0.249	0.178
17	0.309	0.119	0.260	0.178
18	0.375	0.351	0.560	0.188
Black				
14	0.200	0.017	0.035	0.097
15	0.307	0.027	0.081	0.124
16	0.446	0.070	0.167	0.129
17	0.408	0.122	0.242	0.178
18	0.488	0.195	0.357	0.169
Hispanic				
14	0.092	0.023	0.051	0.090
15	0.166	0.037	0.110	0.111
16	0.265	0.076	0.177	0.141
17	0.362	0.120	0.289	0.141
18	0.385	0.254	0.388	0.113
FEMALES				
Total				
14	0.053	0.010	0.022	0.075
15	0.100	0.018	0.049	0.117
16	0.189	0.034	0.144	0.134
17	0.265	0.054	0.166	0.140
18	0.340	0.184	0.378	0.131
White				
14	0.049	0.011	0.024	0.079
15	0.094	0.020	0.052	0.131
16	0.176	0.036	0.157	0.150
17	0.260	0.057	0.178	0.156
18	0.336	0.207	0.411	0.141
Black				
14	0.080	0.001	0.012	0.055
15	0.134	0.010	0.032	0.061
16	0.283	0.026	0.093	0.078
17	0.340	0.045	0.121	0.099
18	0.417	0.092	0.273	0.109
Hispanic				
14	0.042	0.007	0.020	0.067
15	0.098	0.016	0.050	0.072
16	0.157	0.030	0.097	0.081
17	0.193	0.037	0.130	0.071
18	0.279	0.102	0.255	0.084

In Table 5 (see page 132), we reverse the temporal linkage between substance use and sexual initiation in an attempt to examine whether the strength of the association between early sexual activity and subsequent alcohol or marijuana use is greater or less than the converse association observed in Table 4. In other words, is initiation of sexual intercourse at a particular age closely linked, in a statistical sense, with an above-average likelihood of

Table 4. Among adolescents who had never had intercourse prior to a given age, probability of initiating sexual intercourse at that age, by initiation of monthly alcohol use or marijuana use in the preceding year

Gender and age	Activity in prior year				
	All youth	None	Alcohol only	Marijuana only	Both marijuana and alcohol
Males					
≤14	0.078	0.065	0.197	0.142	0.206
15	0.125	0.118	0.174	0.212	0.125
16	0.239	0.217	0.263	0.359	0.464
17	0.279	0.238	0.321	0.492	0.505
18	0.307	0.285	0.329	0.426	0.466
Females					
≤14	0.053	0.043	0.175	0.155	0.227
15	0.092	0.086	0.068	0.193	0.262
16	0.175	0.152	0.328	0.366	0.302
17	0.239	0.209	0.332	0.423	0.439
18	0.290	0.262	0.365	0.460	0.525

beginning alcohol consumption or marijuana use over the following year?*

The data in Table 5 permit several generalizations. First, there is strong confirmatory evidence that at all adolescent ages, boys and girls who become sexually active are much more likely than their sexually abstinent counterparts to begin using alcohol or marijuana thereafter. For the most part, the linkages between early sexual activity and subsequent marijuana use are stronger for girls than for boys, a pattern consistent with the notion that these activities may represent more deviant behavior for the former than for the latter. Among both sexes, the link between sexual activity and marijuana use is generally stronger than that between sexual activity and alcohol use. These findings support the idea that early, moderate alcohol use may be more socially acceptable among teenagers than is either early sexual activity or early marijuana use, and that both sexual activity and marijuana use may be somewhat more acceptable for boys than for girls.

In multivariate analyses not elaborated on in this article,† we found that linkages between substance use and early sexual activity before age 16 remained statistically significant after we controlled for a fairly broad range of demographic and socioeconomic background factors. Thus, it is clear that these linkages represent more than just common early influences. This result is certainly consistent with the notion that there are a myriad of other influences on adolescent behavior, including enormously powerful peer influences and random factors associated with access by adolescents to illicit substances or sexual activity.

It is likely that among at least certain young people, reporting on substance use and sexual activity may be less than precise. Some may recollect only approximate patterns of behavior; others may be able to recall approximately when certain events happened, but may be less certain about the precise order of events. Table 6 examines the proportion of youth who became sexually active at a given age and also initiated alcohol consumption or marijuana use within a year (either way) of becoming sexually active. Given that the data on alcohol and marijuana use and sexual activity are retrospective, it may be that some adolescents are able to accurately recall that two activities happened at about the same time, but are not able to remember the exact order in which they occurred.

Our primary hypothesis is that because very early sexual initiation is nonnormative behavior, it may be linked with other nonnormative behaviors. For the most part, the results of Table 6 clearly do not support this supposition: Boys and girls who initiated sexual activity at younger ages are more likely *not* to have initiated substance use within a short period before or afterward than are those who had first intercourse at older ages. The youngest boys and girls, regardless of their race or ethnicity, are more likely to have had sex only. Adolescents who became sexually active at older ages, on the other hand, are

Table 5. Among adolescents who had never consumed alcohol or used marijuana prior to a given age, probability of initiating alcohol consumption or marijuana use subsequent to sexual intercourse, by age at which first intercourse occurred

Timing of sexual activity	Males				Females			
	Any substance	Alcohol only	Marijuana only	Alcohol and marijuana	Any substance	Alcohol only	Marijuana only	Alcohol and marijuana
First intercourse before age 14	0.204	0.065	0.114	0.025	0.252	0.068	0.138	0.052
No first intercourse before age 14	0.107	0.026	0.075	0.006	0.089	0.010	0.073	0.006
First intercourse at age 14	0.270	0.062	0.130	0.078	0.253	0.036	0.151	0.066
No first intercourse at age 14	0.185	0.053	0.107	0.025	0.116	0.020	0.087	0.009
First intercourse at age 15	0.377	0.147	0.158	0.072	0.339	0.098	0.184	0.057
No first intercourse at age 15	0.265	0.117	0.101	0.047	0.185	0.066	0.088	0.031
First intercourse at age 16	0.427	0.212	0.142	0.073	0.393	0.167	0.173	0.053
No first intercourse at age 16	0.276	0.138	0.092	0.046	0.204	0.081	0.092	0.031
First intercourse at age 17	0.557	0.378	0.064	0.115	0.478	0.347	0.061	0.070
No first intercourse at age 17	0.406	0.312	0.026	0.068	0.340	0.255	0.037	0.048

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*The questions on sexual activity, drug and alcohol use were asked not only in different surveys (i.e., alcohol in 1983, drugs in 1984 and sexual intercourse in both surveys), but at different points in the interview schedule. This should have minimized the risk of a "halo effect" contaminating all of the responses in any one consistent direction.

†An earlier version of this article, containing the multivariate analyses, is available from the authors.

more likely to have begun using marijuana or drinking alcohol close to the time at which they first had intercourse. However, it can be seen clearly from the data in Table 6 that at the younger ages, with the exception of Hispanic youths, the linkage between sexual intercourse and marijuana use is systematically stronger than the linkage between sexual intercourse and alcohol consumption. This is consistent with the idea that marijuana use may be a less acceptable type of behavior in early adolescence than is the consumption of moderate amounts of alcohol.

As we indicated earlier, regardless of the age at which they begin to have intercourse, minority youths (particularly blacks) are more likely than whites to have initiated sex at a point in their lives farther removed from the start of alcohol or drug use. In contrast, white boys and girls are far more likely than the others to have started using alcohol and marijuana within a year of becoming sexually active. Generally, the patterns among Hispanics were intermediate between the patterns of blacks and those of whites. Thus, to the extent that generalizable links can be found between types of behavior, they are most prevalent among white adolescents; among minority teenagers, substance use and sexual activity are clearly much more discrete events.

Discussion

Using data from a large, nationally representative contemporary data set, we have examined in some detail the pattern of initial use of a variety of illicit substances in relationship to early sexual activity. While the establishment of causality is beyond the scope of this research, the longitudinal nature of our data permits us to temporally order a youth's initiation into sexual intercourse in relation to his or her early use of marijuana or alcohol.

Several of our results are worth reiterating. First, it is important to place adolescent behaviors in perspective. Among younger adolescents (those under the age of 16), almost two-thirds of young women and half of young men neither have been involved with any of the substances examined here nor have engaged in sexual intercourse. It is only among older adolescents that a majority have engaged in at least one of these activities.

Table 6. Percentage distribution of adolescents who first had sexual intercourse before age 19, by use of alcohol or marijuana within one year of first intercourse, according to gender, race/ethnicity and age at first intercourse

Gender, race/ ethnicity and age at first intercourse	Activity					
	Sex only	Sex and alcohol	Sex and marijuana	Sex, alcohol and marijuana	Total	N
MALES						
Total	33.6	26.2	16.7	23.5	100.0	4,410
<14	49.8	9.9	25.1	15.3	100.0	779
14	39.3	10.1	30.0	20.6	100.0	466
15	40.2	21.3	20.6	17.9	100.0	706
16	31.0	25.7	15.8	27.4	100.0	1,016
17	24.2	37.2	8.1	30.5	100.0	812
18	27.4	38.7	11.8	22.2	100.0	631
White						
Total	29.1	28.3	16.3	26.4	100.0	2,485
<14	39.1	11.4	27.6	21.9	100.0	277
14	29.9	11.0	33.4	25.8	100.0	215
15	36.6	22.8	19.9	20.8	100.0	369
16	28.4	25.7	16.2	29.6	100.0	633
17	22.2	38.0	7.6	32.3	100.0	540
18	27.5	38.8	12.3	21.5	100.0	451
Black						
Total	52.9	15.8	20.2	11.0	100.0	1,267
<14	63.5	8.1	22.3	6.1	100.0	419
14	59.6	5.3	26.5	8.7	100.0	180
15	53.5	12.9	25.1	8.5	100.0	228
16	45.4	25.1	14.4	15.2	100.0	238
17	38.7	33.4	11.9	16.0	100.0	120
18	24.7	35.6	9.8	29.8	100.0	82
Hispanic						
Total	40.0	27.3	12.8	20.0	100.0	658
<14	53.9	7.4	20.5	18.2	100.0	83
14	49.7	20.5	12.3	17.5	100.0	71
15	41.9	28.8	16.3	13.0	100.0	109
16	39.0	27.5	13.0	20.5	100.0	145
17	34.9	31.2	10.3	23.6	100.0	152
18	29.0	40.2	6.2	24.6	100.0	98
FEMALES						
Total	34.7	25.6	16.2	23.5	100.0	3,779
<14	48.9	9.2	28.8	18.1	100.0	199
14	39.8	5.8	35.8	18.6	100.0	281
15	39.4	15.3	26.1	19.2	100.0	560
16	37.1	20.8	19.3	22.8	100.0	888
17	28.6	36.4	9.4	25.7	100.0	948
18	33.0	33.7	6.6	26.7	100.0	903
White						
Total	30.6	26.5	16.6	26.3	100.0	2,216
<14	35.7	10.7	32.0	21.7	100.0	117
14	33.6	5.7	37.0	23.7	100.0	152
15	33.8	15.1	29.2	22.0	100.0	324
16	31.2	22.2	20.0	26.6	100.0	489
17	25.5	36.9	9.3	28.3	100.0	574
18	31.9	33.9	6.4	27.9	100.0	560
Black						
Total	50.2	22.0	14.8	13.0	100.0	1,072
<14	69.9	5.2	18.8	6.2	100.0	66
14	59.6	3.7	33.1	3.6	100.0	99
15	58.5	16.5	17.0	8.0	100.0	160
16	55.5	16.5	17.1	10.9	100.0	284
17	39.5	35.2	10.0	15.4	100.0	256
18	38.1	32.6	5.4	24.0	100.0	207
Hispanic						
Total	47.9	23.9	14.5	13.7	100.0	491
<14	*	*	*	*	100.0	16
14	48.7	16.4	28.5	6.4	100.0	30
15	52.9	14.8	14.4	17.9	100.0	76
16	55.0	16.7	16.5	11.8	100.0	115
17	46.8	31.1	9.6	12.4	100.0	118
18	36.9	33.8	12.9	16.4	100.0	136

*Sample size is <30.

Note: Samples are restricted to respondents who were at least age 19 as of the 1983 survey.

In addition, early adolescent behavior tends to be singular; that is, when young teenagers are engaged in any of the activities examined here, they typically tend to be sexually active, to smoke marijuana or, to a lesser extent, to consume alcohol. Even by the age of 16, when 35 percent of the young women had engaged in at least one of the activities examined here, a majority had participated in only one: Eight percent had only had intercourse, 13 percent had only used marijuana and two percent had only used alcohol; in other words, only 12 percent of all the young women had engaged in more than one activity by age 16. A similar statement can be made for young men, although the proportions who engaged in the various activities are higher. In short, the proportions of younger adolescents who might be considered "multiple users" are quite modest, and the percentages cited here overstate patterns of actual multiple involvement, since they represent young people who engaged in one or more activities by a certain age, but not necessarily all at the same age.

Nonetheless, it is important to note that teenagers who use one or several substances at an early age are more likely to become sexually active within a year than are those who used none of these substances. There is no doubt that young men and women who start using marijuana or consuming alcohol (or, in particular, begin doing both) at early ages are more likely than their abstaining counterparts to initiate sexual activity within a year, although the causal linkages remain unclear. Perhaps the more important conclusion, however, is that young people under age 16 who begin using marijuana or alcohol are more likely to remain virgins during the following year than they are to become sexually active. In other words, although there is a statistical association between these activities, a causal association not only is far from a certainty, but is unlikely for very many young people.

Conversely, those who engage in sexual activity at a given age certainly are more likely to use alcohol and, in particular, marijuana during the following year than are those who have not had intercourse. These linkages may be somewhat stronger for girls than for boys. However, once again, an important caveat is that only a modest minority of young people below age 16 begin using marijuana or alcohol in the year following their sexual initiation; the linkage is very strong statistically, but only modest substantively.

At the same time, our research lends little support to the view that youthful "deviant" activities are part of a syndrome that involves large proportions of youths. Although there certainly are some young people who have been involved with alcohol and marijuana and have been sexually active, all by their 17th birthday (17 percent of boys and eight percent of girls), the fact remains that the large majority of American adolescents are not involved in all of these activities at relatively youthful ages. This is not to suggest that adolescent substance use and sexual activity do not represent important social problems; by their 17th birthday, large proportions of boys and girls have used alcohol or marijuana or have engaged in sexual intercourse. Each of these activities in isolation, at least in some instances, can be symptomatic of adolescent problem behavior—behavior that can have both short-term and long-term consequences for a youth's health and his or her social and economic prospects. However, to dwell on "syndromes" of deviance that probably affect only modest proportions of young people may be counterproductive from the perspective of developing appropriate youth programs or policies.

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Special Report

FDA Approval Ends Cervical Cap's Marathon

By Michael Klitsch

On May 23, 1988, the U.S. Food and Drug Administration (FDA) announced its approval of the Prentif cavity-rim cervical cap* for general use in the United States, ending a nearly decade-long struggle for a federal okay.[1] The official announcement followed a positive recommendation by the FDA's Obstetrics and Gynecology Devices Panel in February,[2] which came about largely as a result of a study sponsored by the National Institutes of Health showing that the cap is approximately as effective as the diaphragm, with about 17 failures per year among every 100 typical users.[3] The FDA's approval comes with one string attached, however: Because of concern over its effect on cervical tissue, the cap is recommended only for women with a normal Pap smear, and the device's labeling will suggest that providers have users return for a Pap smear after three months of use. The FDA is now discussing a proposed postapproval study to be conducted by the cap's manufacturer that will address these concerns.[4]

Background

The cervical cap—a small, rubber, thimble-shaped barrier contraceptive—fits tightly across the cervix and prevents sperm from entering the uterus. It has been used for many years in both Europe and the United States, although it has never been very popular here. In 1979, the cap's already limited availability was threatened by a recently enacted government regulation—the Medical Device Amendment of 1976—that requested the manufacturers of all medical devices on the market before 1976 to provide the FDA with data on safety and efficacy as well as proof that the device had been marketed in the United States before that year.[5] When the British manufacturer of the cervical cap, Lamberts Ltd., failed to provide the needed information, the FDA placed the cap on its Class III list of devices that represent a significant risk to the user and ordered the seizure of all cap shipments entering the country.[6]

Feminist health organizations in the United States had begun advocating use of the cervical cap some years before as an alternative to hormonal contraceptives, and their clinics were the most important providers of the cap in early 1980, when the ban went into effect. At that time, the National Women's Health Network and other concerned feminist organizations pressed the FDA to reconsider. In 1981, the FDA issued an Investigational Device Exemption regulation that permitted individual service providers to offer the cap within the context of a research project in which they would follow a specific study protocol and report their data regularly to the FDA. More than 50,000 American women have used the cap legally since then under exemptions granted to over 100 providers around the country.[7]

Recent Cap Data

The National Institutes of Health (NIH) funded a research project in 1981 designed to determine the cap's effectiveness in comparison with that of the diaphragm. The study, which was concluded in 1986, demonstrated that—as many supporters of the cap had argued and as 30-year-old research had indicated—the cap is about as effective as the diaphragm.[8] The study, which was conducted at family planning clinics in the Los Angeles area, involved around 1,500 sexually active women 18–40 years of age whose menses were regular and who were willing to be randomly assigned to use either the cervical cap or the diaphragm. Cap users were taught how to use the device and were required to return to the provider a week later so clinic staff members could check their insertion technique. All of the women returned three months after getting their diaphragm or cap in order to have a pelvic examination and a Pap smear. About six percent of the women assigned to use the cap could not be fitted with one, compared with fewer than one percent of those assigned to use the diaphragm.

The cap users left the device in for an average of 60 hours at a time, compared with 19 hours among users of the diaphragm. One-year pregnancy rates were roughly the same for both devices—17.4 per 100 cap users compared with 16.7 per 100 diaphragm users. The method-related failure rate for the cap was 6.4 per 100, while the user-related pregnancy rate was 11.7 per 100. The method failure rate after two years (11.8 per 100) was substantially higher than the one-year rate.

After one year of use, cap users were generally more likely than diaphragm users to complain that the device caused vaginal odor (17 percent vs. nine percent) and were more likely to report that the device had been dislodged at least once during use (40 percent vs. 14 percent). On the other hand, the study participants relying on the diaphragm were more likely to object to their method's messiness and interference with intercourse: Twenty-eight percent said that the method disrupted sexual spontaneity, compared with just five percent of cap users; and 24 percent complained that the diaphragm was messy, compared with just two percent of cap users.

The researchers also noted that according to the Pap smears conducted after three months of use, cervical abnormalities developed over three months among 18 cap

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Michael Klitsch is associate editor of *Family Planning Perspectives*.

*The Prentif cavity-rim cervical cap is made of a soft, pliable latex and is about half the size of the diaphragm. Several other types of cervical cap are produced by the same manufacturer, including the Vimule cap, which is made of a harder material resembling celluloid. However, these devices were not considered for approval by the FDA.

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users compared with seven diaphragm users, a statistically significant difference. The Obstetrics and Gynecology Devices Panel expressed some concern about the finding and urged further research. As a result, the FDA is negotiating with Lamberts on a postapproval study that would contrast a group of cap users with a control group to see if regular reliance on the cervical cap increases the rate of abnormal Pap smears. However, the details of this arrangement have yet to be worked out.[9]

The FDA decreed that the cap may be left safely on the cervix for up to 48 hours and that spermicide should always be applied to the inside of the cap before it is inserted. Members of the National Women's Health Network, which spearheaded the drive for the device's approval, believe that the cap can be used safely and effectively for 72 hours or longer and that the cap is just as effective without spermicide as it is with it. In the NIH-funded research, women were advised that they could use the cap for up to 72 hours at one time, but some members of the Obstetrics and Gynecology Devices Panel argued that given the possibility of cervical abnormalities, women should be told not to use the cap for more than 24 hours.[10] On the basis of the data available, the panel finally compromised on 48 hours as a maximum. In addition, because the NIH-sponsored study stipulated that cap users apply spermicide each time they inserted the cap, the panel decided that the FDA should require all users to add spermicide.

What Next?

Although the FDA has now given the cervical cap its blessing, a few remaining problems will still limit the device's availability in the United States, at least in the short term. For example, because the cap comes in only four sizes, some of the women who might like to use the cap will be unable to do so; this represents an important difficulty, given that the cap's effectiveness depends on its fit. Lamberts has said that it will soon be producing a wider variety of sizes, but the company is expected to wait to see how great the demand will be among U.S. women before it manufactures additional sizes (any new sizes will also have to be approved by the FDA). Another difficulty is that Lamberts has not yet reached an agreement with a distributor in the United States, which further complicates supply of the cap in the near future.

Finally, there may be training-related delays in the cap's availability. A great deal more training and fitting are needed for the proper use of the cervical cap than are required for the diaphragm, both for the potential user and for the clinician who trains her. However, there are at present no plans for any national coordination of cap-insertion training. Instead, agencies that have been offering the cap over the past few years through the FDA's Investigational Device Exemptions are serving as trainers. Organizations and individuals who are interested in providing the cap are being asked to contact the National Women's Health Network in Washington, D.C., to find out the name and address of the nearest provider that can offer training sessions.[11]

Advocates of the cervical cap hope that reliance on the device will rise now that a wider variety of agencies will be offering it. Cynthia Pearson, program director of the National Women's Health Network, pointed out that the FDA's approval of the cap "now makes the cap legitimate for use in funded programs, so that poor women and Medicaid recipients will now have the cap as an option."[12] The Planned Parenthood Federation of America has asked that all of its affiliates have personnel trained to fit the cap, and other types of providers will probably follow suit.

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Comment

Numerical Declines and Older Age Structures In European Populations: An Alternative Perspective

By Lincoln H. Day

Introduction

The populations of Europe are currently experiencing not only their lowest ever fertility levels, but also what seems likely to be their longest ever period of fertility at below-replacement levels. This circumstance has come about, be it noted, in the absence of depression, war or other contributing factors. Although the population projections currently used by both the United Nations[1] and the World Bank[2] incorporate the assumption that fertility in Europe will eventually return to replacement levels, there is at present no empirical evidence that it will.

Some of this low fertility may be the result of nothing more than postponement of births. However, the fact that in most of these countries fertility has been below replacement for more than a decade, and that marked declines have occurred in birthrates at the middle and higher parities, suggests instead a fundamental change in family-size desires. In the years between 1940 and 1980, for example, the proportion of all births that were of fourth or higher parity declined by 61–87 percent. In 1940, the proportion of births at these parities ranged between 19 and 46 percent (with a median of 23 percent); by 1980, the range had narrowed considerably, from three to 16 percent (with a median of six percent). It is by no means implausible to suppose that below-replacement fertility may be, as one observer has put it, the "logical, perhaps largely unavoidable, end stage of full demographic transition [in which] individuals given full control over their fertility will find better things to do with their time than fully replace themselves."[3]

The inevitable demographic results of this fertility pattern are an older age structure and a decline in population numbers. European age structures have been changing for a long time; numerical declines—at least in response to low fertility—are of more recent origin. Yet numerical declines are already occurring in Denmark, West Germany and Hungary[4] and are expected to commence within the next decade in Austria, Belgium, East Germany, Luxembourg and Sweden.[5] Barring marked increases in fertility, declines in population numbers will eventually occur in every country in Europe (except Albania, Iceland and Ireland) as well as in those countries outside Europe whose populations are of European origin.

Not surprisingly, these demographic changes have occasioned some alarm; less in professional circles than in lay, but to some extent in both. The prospect of numerical declines, in combination with still older age structures, generates a host of fears—for example, of labor shortages and wage inflation, weakened national defenses, shortages of intellect, declines in national "vigor," race suicide and the disappearance of European culture.

Because demographic and economic phenomena can be expressed numerically, they are often accorded a causal significance beyond their due. In discussion of these matters, the causal nexus between the lower fertility of European populations and the deleterious social consequences which presumably follow tends to be simplistic and often is not even specified. Yet surely, any claim to a causal association between such phenomena and demographic conditions ought to incorporate into the equation all types of nondemographic factors. Demographic conditions do set limits, but in matters like these, the limits are necessarily very broad.

However, there can be no question about one of the fears articulated: The European share in total world numbers is bound to decline—less as a result of low European fertility than of the continuation, elsewhere, of much higher fertility with its accompanying higher growth rates. Low European fertility only hastens the process. From some 18 percent of the world's total population in 1750,[6] Europeans had increased their share to 29 percent by the mid-20th century. During that period, the world population had more than trebled, and Europeans had emigrated in sizable numbers to every continent.[7] Between 1950 and 1985, European numbers increased 50 percent, from 722 million to 1,091 million, but their share of the total world population dropped to some 23 percent.[8] By 2025, if the fertility assumptions of the United Nations' "medium" population projections are realized, the number of Europeans will have increased another 32 percent, but the European proportion of the world total will have declined further still—to 18 percent, or the level seen on the eve of the modern period of rapid population increase.[9]

It is doubtful that such a change in relative proportions could have much effect on European life-styles and living conditions, or that it could bring about or quicken the pace of either a decline in European influence or the demise of European civilization. Whatever their share of the world's total, a billion or so Europeans cannot help but figure prominently on the world stage. The real demographic threat to European life-styles and civilization may not be too few people, but too many.

As to the other fears expressed about European fertility decline, the outlook is at the least uncertain, because both aging on the scale anticipated and shrinking population size (especially as a result of low fertility) are such recent phenomena in human experience. Numerically, the extent of these changes would be determined by how far fertility falls below replacement levels, and how long it remains there. However, the social consequences of ag-

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Table 1. Proportion of the population classified as "aged" at three points in time, by age* and longevity† criteria, for specified European countries

Country	1940		1985		Future time when population returns to 1940 size	
	Age	Longevity	Age	Longevity	Age	Longevity
Denmark‡	7.4	5.1	12.8	5.9	26.5	18.0
Finland	6.4	4.6	12.3	8.3	24.6	18.2
France‡	10.3	8.3	10.0	6.2	20.4	14.3
German Fed. Rep.	9.5	—	14.5	8.0	33.2	25.7
Germany, total	9.8	8.3	14.3	8.3	29.9	21.9
Hungary	7.0	4.9	12.6	7.7	20.6	18.1
Italy	7.5	5.3	13.2	6.4	29.4	22.0
Netherlands‡	6.7	4.6	9.9	5.2	26.4	19.7
Sweden‡	8.7	5.6	14.9	7.5	22.6	16.2
Switzerland‡	7.5	5.2	11.6	5.6	24.7	17.5
United Kingdom§	8.1	6.6§	15.2	8.4	23.1	16.7

*Age criterion for "aged" classification is age 65 or older.

†Longevity criterion is having a life expectancy of less than 10 years.

‡Males only. §England and Wales, for 1940 only.

Sources: See reference 5; United Nations, *Demographic Yearbook*, New York, 1960, Table 5; and ——, *Demographic Yearbook*, New York, 1949/50, Table 4.

ing or declining numbers of people would appear to depend essentially on nondemographic factors—the types of social policies in operation; the distribution of wealth and income; the availability of health services, housing and public transportation; and the conditions of the physical and social environment, such as air quality, noise, personal safety and opportunities for social interaction and the enjoyment of privacy.

In addressing these issues, we offer an alternative perspective. Let us not assume, as do the United Nations and the World Bank, that European national fertilities will return to replacement levels. Instead, let us assume that they will continue at their 1985 below-replacement levels. In addition, we shall assume that there will be no decline in the capacity of these populations to control their fertility, no net effect of migration on either numbers or age and sex structures, slight improvements in longevity (in conformity with World Bank assumptions) and no major mortality increases as a result of war, famine or natural disaster. What then?

Demographic Changes

Even with a continuation of unprecedentedly low fertility levels, it would be many years before any European country experienced a numerical decline sufficient to reduce its numbers to those of 1940—a level arguably sufficient for any legitimate national purpose. From the 1985 base year, it would require at least 45 years in Austria and 134 years in France before the populations in those countries were reduced to those of 1940. The minimum proportion by which the population would have to decline to reach 1940 levels ranges from 0 percent in East Germany (an anomaly because its population has already reached its 1940 size and will continue to age) to 12 percent in Austria. The maximum declines necessary to reach 1940 levels could be as high as 39 percent in the Netherlands and the Soviet Union. The median decline in population numbers would be 26 percent.

Further aging in these populations is inevitable, whatever happens to fertility. But continuation of current fertility levels would lead to especially marked increases in the proportions of old people. It is this change that seems to be the particular concern of those most worried about current demographic trends in Europe.

It is impossible, however, to determine precisely either the onset of the particular characteristics and capacities commonly ascribed to old age or the consequences, for the individual and the society, of a person's attaining this stage of life. The typical and arbitrary definition of old age as beginning at age 65 produces one set of parameters concerning the "aged" proportion in the population. While still arbitrary, an alternative definition—the proportion of people whose life expectancy is less than 10 years[10]—produces a different set of parameters. As shown in Table 1, there are 11 countries for which it is possible to compare the results of these definitions for three periods: 1940, the present, and the hypothetical future when the population will have shrunk to its 1940 size.

On the basis of the 65-and-older criterion, the proportion aged in 1940 ranged from 10.3 percent in France to 6.4 percent in Finland. Applying the longevity criterion reduces these proportions to 8.3 percent and 4.6 percent, respectively. At that hypothetical future time when the population will have returned to its 1940 size, the proportion aged in the two countries is projected to be 20.4 and 24.6 percent, respectively, according to the age criterion, but only 14.3 and 18.2 percent according to the longevity criterion. Use of the longevity criterion, which is more socially and demographically meaningful, reduces the proportion of the aged in a population by about 25–30 percent in each time period.[11]

As for the consequences of old age, although it may be useful for administrative purposes to establish eligibility for programs based on birthdays, there is no direct causal relation between age and need. Life habits prior to old age, such as diet, exercise and the intake of drugs affect the aging process, as do contemporary conditions, such as air quality, noise and the availability of public transportation and appropriate housing. Moreover, aging is as much social and psychological as it is biological. *When* old age begins and *how* it manifests itself may well be explained less by birthdays than by conditions of life.

The Policy Choices

One way to address the aging of a population is to change the presumably unfavorable demographic circumstances themselves. The goal of this approach is to create a younger age structure and a population growth rate of no less than zero. There are three general strategies for attaining that goal: increasing fertility, increasing net immigration or allowing an increase in mortality at the older ages.

- *Increasing fertility.* This involves forcing people to bear childen they do not want, increasing the desire (or willingness) to have greater numbers of children, or removing obstacles to childrearing, making it easier for people to have more children.

Forcing increased childbearing upon people—by limiting access to contraceptives and abortion—is ethically and, in a democratic society, politically questionable. It is also unlikely to work, at least more than very temporarily, in a society that has already brought fertility under extensive control.

No such limitations are involved in increasing the number of children people want to have. However, a policy of this type implies both a knowledge of fertility motivation and the ability to manipulate elements determining that motivation. Nearly half a century's research into fertility motivation has done little more than narrow the range of conjecture as to why someone actually does or does not have a particular number of children. Part of the problem is that decision-making may be neither as comprehensive nor as temporally consistent as the theories maintain it is. The nature of both the data and the variables used by fertility researchers has permitted only a knowledge of general probability and direction; however, this level of knowledge is likely to be enough to inform policy-making.

So why have pronatalist policies been so unsuccessful?[12] Paul Demeny claims that governments, being ill-equipped "to engineer and guide appropriate value changes," are confined essentially to the manipulation of "economic levers," and that so far, they have not manipulated the most effective of these. Accordingly, he proposes that the material link that presumably once existed between fertility and old-age security be reestablished by allocating a specified fraction of an individual's social security contributions directly to his parents.[13] Demeny ignores the fact that many people in low-fertility societies already render economic help to their aged parents. Nor does he consider the possibility that governments may not be quite so confined to economic levers after all. Surely a government's role in education, the conduct of foreign affairs or environmental policy could foster or discourage an atmosphere conducive to childbearing? Nonetheless, Demeny's pronatalist policy is one of the more sensible and sophisticated, and it holds out the possibility of being relatively easily administered.

The drawback of Demeny's policy, apart from the question of whether it would work, is that it would not be very fair, contrary to its author's claim.[14] Children entail economic and emotional costs for their parents, but they also provide the possibility of substantial psychic benefits, which, like the proposed extra income from children's social security payments, are unavailable to the childless. On the other hand, the whole society shares in the costs of raising children. Shared costs include the economic costs of providing schooling and other social services; emotional costs occasioned by children's intrusion upon privacy, space and enjoyment of life; and costs from higher crime rates associated with youth.

Removal of obstacles to childbearing—such as inadequate child care, maternity leave, medical attention and housing—would more likely meet the criterion of equity, since parents do experience special needs. But whether this strategy would increase fertility very much is doubtful. Most European societies already provide some such assistance without any noticeable boost to fertility in consequence. Expansion of this assistance could be supported on grounds of social justice, but not much can be expected from it as far as fertility is concerned.

- *Increasing immigration.* Two characteristics of immigration hold particular appeal for host societies: its apparent amenability to precise regulation regarding rate, direction and composition, and the possibility of gaining numbers of people and skilled workers without having to bear the prior costs of nurture and training. However, immigration presents a number of problems—for the immigrant, the host society and even the donor society. The types and seriousness of these problems are affected not only by the size and rate of immigration, but also by whether the immigrant wants to remain in the host country and does so, and by the extent to which the immigrant visits and sends remittances to his country of origin.

Immigration is at best a temporary expedient to population aging and decline. Depending on their number, duration of residence and fertility, immigrants' inevitable concentration within certain age-groups could, over time, distort the entire age structure. Nor can immigration be depended upon to introduce a lasting element of higher fertility into a population that has ceased to replace itself. Immigrants to countries with low fertility seem to become as receptive as the natives are to those countries' inducements to low fertility.[15] Moreover, these higher fertility immigrants would tend to come from countries with markedly different cultural and racial characteristics. The immigrant is apt to be a second-class citizen—economically, socially and politically—especially if he is one of a large influx and has been recruited (as is likely in the countries under consideration) for less-desirable employments. Second-class citizenship is hardly an element to reinforce the foundations of a democratic society, nor is its existence desirable for either the immigrant or the native.

Overall, the immigration "solution" stresses the short-run and economic, especially labor-force, aspects of the demographic changes attending low fertility. It stresses too little the long-run, noneconomic, social and personal aspects. To rely on immigration to solve difficulties anticipated from low fertility is seriously to risk a society's future well-being on behalf of a policy with no more than questionable efficacy in the present.

- *Increasing mortality.* Ethical issues aside, increasing mortality at the upper ages would accelerate numerical decline. But the costs entailed by such a decline would presumably be offset by the gains associated with the more youthful age structure that would result. There are two possible procedures: direct intervention (through suicide and homicide) and the withholding of life support. There is enough anecdotal and clinical evidence to suggest that both are already widely practiced in low-mortality societies. Whether further relaxation of the strictures on suicide and euthanasia in these societies would have much effect on their age structures is doubtful. However, it could reduce the economic and psychic costs of terminal care.

Institutional Change

An alternative to changing the demographic circumstances is to undertake institutional changes required by an aging population. More will need to be done to ensure that older people are permitted a life of dignity and reasonable comfort, that society is enabled to take advantage of what older people have to offer and that the relatively scarce resource of children and young adults is not wasted. There will be a need for fewer age-based restrictions, for greater flexibility in retirement and labor-force practices and equal wage structures so as to attract workers to less-desirable, though necessary, jobs. Better provision of certain social services will also be required, including services designed to provide for many of the needs of older people formerly met through the efforts of kin.

Overall, planning will be required to enable those in an enlarged aged sector to take care of their economic and noneconomic needs without undue reliance on others. Fortunately, many of the services and facilities this would require—public transportation, walk-in health maintenance and counseling services, public spaces in which to meet people informally, inexpensive rental housing—would also be of use to others in the society.

But the likely cost of these things is worrying to some—partly because of the newly arisen magnitude of the demand for services and the relative novelty of some of the programs themselves; partly, it is a matter of perspective. We might allay much of this concern if we were able to express the costs in "missile-equivalents" instead of dollars. Moreover, it is worth remembering that the flow of intergenerational wealth is not restricted to a single direction: The aged often lend support to younger members of society.[16] In addition, older people will presumably have a lifetime of work behind them. Programs, such as forced savings, that enable the aged to support themselves through earnings garnered during their peak working years will need to be developed and extended. It should also be possible to effect savings in pension payments through the introduction of some elements of means-testing, such as the progressive taxation of pensions as part of regular income. There should also be some savings from the smaller proportion of the population in the younger dependent age-groups. Over a decade ago, Norman Ryder concluded that changes in social, not demographic, policy are the solution to institutional flaws revealed and exacerbated by declines in population growth rates.[17] The conclusion still holds.

Discussion

The changes that can be anticipated in population age structure and growth rates are bound to bring problems. But these problems may be less serious and less insoluble than is frequently pictured. For one thing, growth rates may not be quite so negative and age structures not quite so heavily weighted in the older ages. Moreover, these changes will not occur suddenly.

Although it is certainly possible that fertility could decline still further, the hypothetical continuation of present European fertility levels is arguably a worst-case scenario. The simple fact that fertility in these countries has declined so very far and is at its lowest ever level in most of them would augur eventual increases. Nor should we rule out a renewed emphasis on family and parenthood. Still greater emotional value might be attached to children if increasing numbers of adults found they received insufficient or no psychic gain from work, neighborhood, kin or religion. Women might come to put a renewed emphasis on the roles of mother and homemaker if they increasingly became dissatisfied with working and the demands it imposes.

Contrary to widely held expectations,[18] there is reason to believe that mortality among the aged in European populations will increase within another decade or two, even in the absence of war or geophysical catastrophe. For one thing, Europe's current generation of old people are survivors; they are the biological survivors of higher levels of mortality in infancy, childhood and early adulthood. The generations that succeed them will be survivors too, but of a period when mortality was particularly low and unusual efforts were made to ensure the survival of weak and underweight newborns, accident victims and people with physiological disorders. Moreover, compared with those who will succeed them, the present generation of older people have had less exposure to certain deleterious environmental conditions—for example, radioactivity and toxic atmospheric and agricultural materials—the unhealthful consequences of which only manifest themselves after many years of exposure.

Today's old people are also emotional survivors—of wars and of economic, social and political upheavals. They have also had arguably less exposure than will succeeding generations to the emotional stress associated with family breakup and reconstitution and with new role expectations and statuses for women (the possible longevity consequences of which have yet to be ascertained). And a higher proportion will have spent a larger part of their lives in rural and small-town environments, which are characterized by higher longevity.

Compared with generations to come, today's elderly are few and represent a small proportion of the total population. As a result, society has been able to allocate sufficient resources to reduce mortality at the oldest ages. However, this pattern is unlikely to continue. The political strength of the next generation of aged may be enhanced by their large numbers, but that factor is unlikely to guarantee the allocation of resources necessary to provide additional longevity to such a sizable number of people. And the aged will probably not have enough political power to counteract the pressure to allocate proportionately more resources to the care and training of the relatively smaller—but more valued—populations of children and youth.

Not only may the demographic situations of European countries deteriorate less than anticipated, but the coming numerical declines and older age structures may prove more beneficial than detrimental. Without concomitant changes in life-style, increases in population size necessarily entail greater demands on natural resources; population stability or decline does not.

Moreover, the population increases of the last four decades, in combination with rapid urbanization and the growth of mass consumerism, have already occasioned some loss of what is distinctive about European life-styles. Much of what is "European" is grounded in access to open space, high levels of consumption of energy from inanimate sources, racial and ethnic homogeneity and a high degree of cultural homogeneity. The first two characteristics involve, among other things, recreational use of the open countryside, mass automobile usage and the use of air, land and waterways for the disposal of wastes and toxic materials. Population increase affects each of these aspects.

At issue is the concept of the optimum population. Much of what has been written on the subject has had a narrowly economic orientation and has tended to concentrate on population numbers to the exclusion of population characteristics. A more appropriate focus would be on the rates at which resources are consumed and the uses to which they are put, and on demographic characteristics rather than mere numbers—specifically, on achieving low mortality rates, an unchanging age and sex structure and a zero growth rate.[19]

The numerical declines and older age structures anticipated offer two potential benefits: First, a period of lessened pressure from population growth could provide opportunities for working toward an improved quality of life by bringing consumption patterns into better alignment with ecological reality. Second, because general differences in consumption patterns and life-styles exist between age-groups, a shift in age structure could possibly result in reduced demands on resources and could, in fact, provide less support for the general ethic of economic growth itself.

Certainly, changes in demographic conditions will require adjustments in institutions and life-styles. But many of these adjustments are already desirable on grounds of justice, equity or human well-being alone; further aging would only emphasize their desirability. Moreover, while smaller numbers and older age structures may simultaneously make adjustment in institutions and life-styles more attainable as they make them more necessary, there is no assurance that the societies concerned will respond appropriately to the challenge. Their responses could be rudimentary, too narrowly focused or too much focused on the short range. But this is beside the point. Much can happen before the populations of Europe will experience numerical declines to any arguably serious extent. The threat to human well-being in these societies comes more from nondemographic than from demographic phenomena and, with regard to demographic phenomena, more from past increases in population than from prospective decreases.

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DIGEST

Young U.S. Adults Marry Considerably Later, Live With Parents Longer Than Counterparts in the 1960s

Compared with young adults in 1960, men and women today stay single longer and live with their parents until later in life. In addition, they are more likely than the earlier generation to be single parents and to obtain divorces. The vast changes in marital status and living arrangements that have occurred in the United States in the past quarter-century become apparent in a comparison of the results of the March 1986 Current Population Survey with earlier data.

The median age at first marriage (the age by which half of all persons have married) rose by approximately three years between 1960 and 1986, from 20.3 to 23.1 years among women and from 22.8 to 25.7 years among men. Men now marry at an older median age than at any time since 1900, when half had done so by 25.9 years of age. Women's median age at marriage is more than a year older now than in 1900, when it was 21.9 years.

As a result of later marriage, larger proportions of 15–39-year-old men and women in 1986 had never been married than was the case in 1960. Among teenage women, 98 percent of those aged 15–17, 92 percent of 18-year-olds and 85 percent of 19-year-olds had not yet married by 1986; among their counterparts in 1960, these figures were 93 percent, 76 percent and 60 percent, respectively. The proportions of young women who had remained single were at least twice as large in 1986 as they had been in 1960 among women aged 20–24 (58 percent vs. 28 percent), 25–29 (28 percent vs. 11 percent) and 30–34 (14 percent vs. seven percent). The difference narrowed at ages 35–39 (eight percent vs. six percent) and reversed itself among women aged 40 and older (five percent vs. eight percent). Only five percent of men had married prior to age 20 in 1986, compared with 13 percent in 1960. While 76 percent of 20–24-year-old men, 41 percent of 25–29-year-olds and 22 percent of 30–34-year-olds were still single in 1986, the comparable proportions in 1960 were 53 percent, 21 percent and 12 percent.

Among both men and women, there was relatively little change between 1960 and 1970 in the proportions who were single. Large changes occurred in the next decade, however, and these have continued apace in the 1980s. For example, the proportion of 25–29-year-old women who were single was the same in both 1960 and 1970 (11 percent), then rose to 21 percent by 1980 and reached a level of 28 percent in 1986. The proportion of men in this age-group who were single actually went down between 1960 and 1970 (from 21 percent to 19 percent), then soared to 33 percent in the next decade and to 41 percent by 1986.

Living Arrangements

Men and women aged 18–24 in 1986 were more likely to be living with their parents than were their 1960 counterparts. While 53 percent were living in the home of a parent in 1986, only 43 percent were doing so in 1960. (Unmarried students living in college dormitories are classified as living at home.) Thirty-three percent of 18–24-year-olds maintained their own homes in 1986, either as part of a family (25 percent) or in a nonfamily living arrangement (nine percent). Comparable figures in 1960 were 44 percent, 42 percent and two percent, respectively. In both years, women were less likely than men to be living in a parental household; in 1986, for example, 47 percent of women did so, compared with 59 percent of men. Women were also more likely than men to be householders or joint householders (40 percent and 27 percent, respectively, in 1986). There was also a slight increase between 1960 and 1986 in the proportion of persons aged 25–34 who were living with their parents (from nine percent to 11 percent) and a slight decrease in the proportion of those maintaining their own homes (from 85 percent to 80 percent).

Despite the decline in the proportion of young people who maintained their own homes, the data show that the number of households in the United States increased by 40 percent between 1970 and 1986—from an estimated 63.4 million households to 88.5 million. However, the rate at which new households were established slowed during the 1980s, when an average of 1.3 million new households were added each year, compared with an average of 1.7 million annually during the 1970s.

Married couples accounted for 58 percent of all households in 1986, a decline from 71 percent in 1970. In addition, fewer than half of married couples (48 percent) now have children younger than 18 in the household, a decline from 57 percent in 1970. Another 14 percent of all households in 1986 were classified as family households because they were composed in part of persons who were related to each other but were maintained by men or women without a spouse present; this was an increase from 11 percent in 1970. Children under the age of 18 resided in 56 percent of these households, whereas in 1970, 48 percent had children younger than 18 in them.

Twenty-four percent of 1986 households consisted of persons living alone, an increase from 17 percent in 1970; four percent were composed of unrelated adults living together, a proportion twice as large as that in 1970. Approximately four times as many unmarried couples maintained households in 1986 (2.2 million) as in 1970; and children under the age of 15 were present in about 30 percent of these households.

The ratio of divorced to married persons in the U.S. population is larger than ever before. For every 1,000 persons in intact marriages, there were 131 divorced persons in 1986, compared with 35 in 1960.

(The divorced category does not include persons who have remarried; these are counted in intact marriages.) Because men are more likely than women to remarry, there were 106 divorced men and 157 divorced women per 1,000 married persons of each sex. The ratio of divorced people is also higher for blacks than for Hispanics or whites—248, 139 and 124 per 1,000 married persons, respectively.

Although there were fewer children younger than 18 in the United States in 1986 than in 1960 (63 million vs. 64 million), the proportion who lived with only one parent at the time of the survey more than doubled, from nine percent to 24 percent. (Approximately three percent of children in 1960 and 1986 were living with neither parent.) In both years, about 90 percent of children living with one parent were living with their mothers. The proportion of white children living with only one parent rose from seven percent in 1960 to 18 percent in 1986, while the proportion of comparable black children climbed from 22 percent to 53 percent during the same period.

The primary reasons why children lived with only one parent were considerably different in 1986 than in 1960. Most children lived with a single parent in 1960 because the parent was separated (28 percent), living apart from a spouse for other reasons (19 percent) or widowed (27 percent). Another 23 percent of single parents were divorced and only four percent had never married. Children lived with a single parent in 1986, however, mainly because the parent was divorced (42 percent) or never married (27 percent), with 22 percent of single parents separated, three percent living apart for other reasons and seven percent widowed.* In 1986, black children were less likely than white and Hispanic children to live with only one parent because of divorce (22 percent compared with 53 percent and 32 percent) and more likely to live with one parent because they were born out of wedlock (49 percent compared with 15 percent and 25 percent).

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*The increase in children who lived with a never-married parent may be due in part to a procedural change in data collection and processing that was designed to improve the identification of single-parent subgroups within households.

USSR: High Infant Mortality Rates Show Slight Declines in 1980s

Although rates of infant mortality in the Soviet Union appear to have declined somewhat from the levels reached during the 1970s, they remain several times higher than the rates in other developed countries, according to an analysis of national data recently released by the Soviet Union.[1] Infant mortality rates reported in rural areas are nearly 50 percent higher than urban rates. Inadequate health facilities, a lack of trained physicians and poor health practices are all believed to contribute to the country's higher infant mortality rates.

Infant mortality data from the Soviet Union have been lacking in recent years. The last official release of national data came in 1974, when it was reported that babies under age one died at the rate of 27.9 per 1,000 live births. (This level represented a 22 percent increase from 1971, when the rate was 22.9 deaths per 1,000.) Since then, the authors of several studies have speculated that information on infant mortality was being suppressed because rates were still rising.

However, the Soviet Central Statistical Administration has recently released time-series data on infant mortality for the period 1980–1986. These show the overall rate in 1980 to have been somewhat lower than a previously reported rate of 30.8 deaths per 1,000 live births in 1975. The new data indicate that the infant mortality rate declined from 27.3 deaths per 1,000 births in 1980 to 25.1 per 1,000 in 1986. The 1980 rate was more than twice the corresponding U.S. infant mortality rate of 11.0 deaths per 1,000 live births.[2]

Urban-rural differentials in infant mortality remain large in the Soviet Union: In 1980, for example, the rural infant mortality rate was 32.5 deaths per 1,000 live births, compared with 23.5 per 1,000 in urban areas; by 1985, the last year for which the rural-urban breakdowns are available, the respective rates were 32.0 and 21.7 per 1,000. While urban infant mortality rates declined slightly over the six-year period for which data are available, rural rates fell to a low of 30.6 per 1,000 in 1983, and then increased again to a level of 32.0 per 1,000 in 1985. The author of the analysis reports that according to a recent Soviet publication, more than 10 percent of all live births in the Soviet Union occur at eight or fewer months of gestation, a factor that may contribute to high infant mortality rates.

The investigator also notes that the relatively high levels of infant mortality seen in the Soviet Union still may be underestimates compared with rates in most other Western nations, because of the definition employed by Soviet statisticians: A baby weighing less than 1,000 grams (approximately 2.2 lbs.) or one born before 28 weeks of gestation is considered a live birth only if it survives for a week. Thus, infant mortality rates might have been even greater if all such high-risk births had been included in the statistics, as in other countries.

According to the author of the report, an editorial accompanying a Soviet article on infant mortality announced that the government would assign a high priority to reducing infant mortality and was addressing the issue in meetings with health ministry officials. Several possible reasons for the elevated rates were given, such as the lack of adequate health facilities and trained medical workers as well as the impact of alcoholism and heavy smoking on women of reproductive age.

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CVS Prenatal Diagnosis Seen to Have Low Rates Of Failure, Fetal Loss

Chorionic villus sampling (CVS), a technique for identifying fetal defects in the first trimester of pregnancy, may become a preferred prenatal diagnostic tool, according to the results of a study of involving 1,000 women undergoing prenatal genetic screening.[1] When conducted in single pregnancies by a physician with "substantial expertise" in the procedure, chorionic villus sampling had a failure rate of 0.6 percent and a 0.6 percent fetal loss rate—risks similar to those associated with amniocentesis. The researchers conclude that chorionic villus sampling is a relatively safe method for early identification of genetic defects.

The chorionic villi are fingerlike projections attached to the outermost fetal membrane; they develop into the placenta after the first trimester. In chorionic villus sampling, the physician, aided by ultrasound, removes this tissue using a small catheter inserted through the cervix, although a transabdominal approach is also possible. Neither anesthesia nor cervical dilatation is necessary. The procedure is usually completed within 5–15 minutes and reportedly causes little discomfort, although it may be followed by light to moderate bleeding for up to several days. Rapid laboratory analysis of the genetic material provides test results within days of the sampling. CVS can be conducted in twin pregnancies if both fetal sacs are clearly delineated and easily accessible.

Between January 1985 and late 1986, 1,113 women, the majority of whom were white and upper middle class, were referred to the Genetics and IVF Institute in Fairfax, Virginia, for genetic counseling and chorionic villus sampling. Sixty-five of the women decided not to undergo the procedure; most of these opted for amniocentesis instead. An ultrasound evaluation revealed that another 108 had nonviable pregnancies; in addition, two women were in their 15th week of gestation, which is too late for CVS, and several declined the procedure when they discovered they had a twin or threatened pregnancy. Thus, 940 women actually underwent the procedure. Of these, 90 percent had been referred because of their age (they would have been close to or older than 35 at delivery), five percent because of suspicion of fetal chromosomal abnormalities, one percent because of potential metabolic or biochemical disease of the fetus, and the remaining four percent because of other problems. Women were not permitted to undergo the procedure unless they were free of vaginal infections or active sexually transmitted diseases. Ninety percent of the women underwent the sampling between their ninth and 11th week of gestation, and the remainder were sampled during the eighth or 12th week. Sampling was conducted on nine twin pregnancies. One physician performed all of the biopsies.

Only a single catheter insertion was necessary for over 80 percent of the cases, and in fewer than three percent was more than one sampling session (limited to three catheter placements) needed to obtain the villus tissue. Chorionic villi could not be obtained from six patients—five because of cervical fibroids and one because the catheter could not be inserted through the cervical os. The total failure rate, then, was 0.6 percent. The villus tissue obtained was sufficient for analysis and accurate diagnosis in all but two of the cases, for which second samples were acquired; in five percent of the cases, villus tissue had to be cultured in order to either confirm or exclude a diagnosis of genetic abnormality. Three percent of the women for whom sampling was successful also needed further evaluation by amniocentesis.

Cytogenetic analysis identified genetic defects in 39 fetuses, representing 4.2 percent of those sampled. Trisomy 21 (or Down syndrome) accounted for almost a third (11) of the cases, while mosaicism (an anomaly of chromosome division that is usually benign when limited to the villus and not the fetus) represented an additional third (12) of the aberrations found. Tay-Sachs disease, sickle-cell anemia and chromosomal and other genetic aberrations made up the remaining 16. Subsequent amniocentesis did not confirm genetic abnormality in any of the apparent cases of mosaicism; thus, true cytogenetic deformities were found in three percent of the cases, representing almost twice the number of defects expected to be identified by amniocentesis. The investigators observe that because abnormal fetuses often spontaneously abort before the second trimester, it is not surprising that villus sampling identified a greater percentage of genetic defects than would normally be diagnosed by amniocentesis.

One concern about CVS is that it might falsely elevate the level of maternal serum alpha-fetal protein (usually an indicator of neural tube defects) which would lead to unnecessary amniocentesis in order to confirm a diagnosis of such defects. Twelve patients who had successful chorionic villus sampling subsequently underwent amniocentesis because of an elevated alpha-fetal protein level. Nevertheless, analysis of blood tests taken at 15–18 weeks' gestation showed that the alpha-fetal protein levels of women who had had CVS were not significantly different from those of pregnant women who had not undergone the procedure.[2] Thus, the researchers conclude, CVS does not appear to interfere with alpha-fetal protein determinants performed 3–10 weeks after CVS.

According to the investigators, six pregnancy losses occurred as a direct result of the chorionic villus sampling: For several weeks after sampling, two women had persistent vaginal bleeding, and both pregnancies, one of which was a twin pregnancy, ended in miscarriage. Two women developed intrauterine infections within two weeks of the procedure, with one fetal death resulting; and three fetal deaths took place within a week of the villus sampling procedure, although the women had no symptoms and a sonogram revealed no abnormalities. Thus, only 0.6 percent of the fetuses tested by chorionic villus sampling were lost as a result of the procedure, a rate comparable to the 0.5–1.0 percent associated with amniocentesis. An additional 17 miscarriages (two percent) occurred several weeks after sampling, but the investigators did not consider these to be related to the procedure. The overall rate of fetal loss, the researchers note, was within the range reported in other studies.

Ten percent of the women who sought chorionic villus sampling were found to have abnormal gestational sacs at their initial ultrasound evaluation and did not undergo the procedure; spontaneous abortion subsequently occurred in all of these cases. The researchers suggest that professionals and facilities anticipate this "high frequency of missed abortions," and help parents "deal with the unexpected disappointment and grief" that inevitably follows the discovery that a fetus is not living and that the pregnancy will end soon.

The investigators conclude that chorionic villus sampling "has proved a safe and accurate prenatal diagnostic method associated with relatively low risk when performed by an experienced team." These results notwithstanding, they call for continued surveillance of the procedure and large collaborative studies in order "to further define the accuracy as well as the risks associated with chorionic villus sampling."

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Choose Sexual Partners Very Carefully, AIDS Researchers Caution

Is the public getting the best possible advice about how to avoid infection with the human immunodeficiency virus (HIV)? According to epidemiologists from the University of California, the most common recommendations to sexually active persons—limit the number of sexual partners, avoid high-risk activities such as anal intercourse, and use condoms—exclude the one piece of advice that would do the most to prevent the spread of infection: "Avoid choosing a sexual partner who may be at risk of carrying HIV."[1]

The researchers estimate that the prevalence of HIV infection among people in high-risk groups is between five percent and 50 percent, compared with 0.01 percent among those who are not in a high-risk group. They calculate that the risk of contracting an HIV infection during a single sexual encounter ranges from one in five billion when using a condom with a low-risk partner known to be seronegative to one in 500 in the case of unprotected intercourse with a seropositive partner. Using a condom, which the authors assume to be 90 percent effective at hindering the transmission of HIV, would decrease the latter risk to one in 5,000.

"The implications of this analysis are clear," the researchers assert. "The best advice we can give our patients is to choose their partners carefully. The most important determinant of the risk of a sexual encounter is the likelihood that one's partner belongs to a high-risk group." They add, however, that following this advice would "rule out casual sex, and, indeed, much of what many people consider to be normal heterosexual behavior."

The investigators note that limiting the number of sexual partners may lower the overall risk of contracting HIV. But even practicing monogamy offers little protection if the partner is not carefully chosen: "Having sex 100 times . . . with a partner who has a one percent chance of being infected with HIV carries nearly the same risk as having sex one time each with 100 different partners who average a one percent chance of being infected." Furthermore, "having one partner who is in a high-risk group is more dangerous than having many partners who are not."

Condom use appears to reduce the risk of heterosexual HIV infection, but according to the researchers, even if condoms are 99 percent effective, they provide less protection than does choosing a low-risk partner: "Using a condom with an intravenous drug user, bisexual man, or prostitute is far more dangerous than [having] sex without a condom with someone who does not belong to any high-risk group." Finally, they agree that avoiding anal intercourse is prudent behavior, particularly because HIV appears to be spread more efficiently that way. Again, however, they note that anal intercourse is not a high-risk activity unless it is practiced with a high-risk partner.

Their advice, then, is that people be told that the top priority is to have sex only with partners known to be at low risk of HIV infection. To be considered low-risk, a person must not be a hemophiliac or have a history of several drug transfusions and must not, in the previous 10 years, have engaged in male homosexual activity, have used intravenous drugs, have lived in Haiti or central Africa or have been the regular sexual partner of a high-risk person. Someone who has engaged in any of these behaviors, but not for at least six months, and has had a negative HIV antibody test since then can be considered at low risk.

The investigators emphasize, however, that people should use condoms whenever they are uncertain about the risk status of their partner, and should avoid anal intercourse in such cases as well. "It is difficult to know the risk status of a potential sex partner unless you know that person quite well," they admit. They recommend "more gradual courtships, [listening] carefully for clues about a potential partner's past, and [asking] directly about any history of high-risk activities."

Reference

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Costa Rica Study: Pill Users Run No Increased Risk Of Invasive Cervical Cancer, Carcinoma in Situ

Findings from a population-based case-control study in Costa Rica show that users of oral contraceptives have no increased risk of invasive cervical cancer. The study also shows that while oral contraceptives appear to increase the risk of carcinoma in situ (a preinvasive stage of cervical cancer), such an association is spurious: It is attributable, the investigators say, not to a causal association but to a detection phenomenon, because pill users are more likely than nonusers to have a Pap smear that might detect the cancer.[1]

The researchers used the Costa Rican National Tumor Registry, to which all cancer cases in Costa Rica are reported, to select patients in whom carcinoma in situ or invasive cervical cancer was diagnosed between January 1982 and April 1984; all patients were 25–58 years of age at the time of their diagnosis. Controls of similar age were obtained through a nationwide household survey conducted between September 1984 and February 1985. Interviewers obtained reproductive, contraceptive and sexual histories from patients and controls. After excluding women who could not be interviewed, cancer patients whose diagnostic biopsy could not be confirmed by a panel of expert pathologists, and controls who had undergone a hysterectomy or had a history of cervical cancer, the investigators included 415 women with carcinoma in situ, 149 women with invasive cervical cancer and 764 controls in the study. The largest proportion excluded was among invasive cancer patients, 19 percent of whom had died before an interview could be conducted.

Results were controlled for age, gravidity, number of sexual partners, age at first coitus, history of sexually transmitted diseases or pelvic inflammatory disease and a history of Pap smears before the beginning of enrollment of cancer patients in 1982. Pill use was classified by total months of use (either intermittent or continuous), years since first and last use and age at first use. Sixty-one percent of the carcinoma in situ patients, 32 percent of the invasive cervical cancer patients and 39 percent of the controls reported ever having used the pill. The risk of invasive cervical cancer among ever-users was 0.8 relative to that of never-users, an inverse association that was not statistically significant. Nor did analyses by duration of use, interval since last use and time since first use show any relationship between oral contraceptive use and invasive cervical cancer. Women who had used the pill were found to have a risk of carcinoma in situ of 1.6 compared with that of women who had never used orals, a positive association that was statistically significant. The relative risk increased with duration of use, and women who had used the pill for 10 or more years had twice the risk of never-users. However, only women who had used the pill within five years of their diagnosis showed an increased risk. Once the effects of recent use were controlled for, no increased risk was found in long-term users.

Given the evidence of a stronger effect among recent pill users, the researchers speculated that the results were modified by access to Pap smears which are used to detect early cervical cancer. While screening for cervical cancer with Pap smears was quite common in all Costa Rican women, pill users were more likely than nonusers to have had a Pap smear—90 percent and 59 percent, respectively. Thus, pill users had a greater opportunity to be detected with carcinoma in situ than nonusers, resulting in a spurious positive association between pill use and this cancer. Since differences in Pap screening between pill users and nonusers were least pronounced among women from metropolitan San José and among those of high socioeconomic status, the researchers calculated the relative risks of carcinoma in situ among these two groups of women. They found no elevated risk among the ever-users living in San José (where 94 percent of pill users but only 70 percent of never-users had obtained a Pap smear) nor among women of high socioeconomic status who had used the pill (where 95 percent had obtained a Pap smear compared with 75 percent of never-users).

The researchers concluded that their study demonstrates that when data are analyzed in ways that minimize detection bias, no positive associations remain between oral contraceptive use and cervical cancer.

Reference

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Children Who Grow Up in Fatherless Households Complete Fewer Years of Schooling Than Others

Men and women who spend part of their childhood in fatherless households attain less education than peers who grow up in two-parent families, according to a recently released comparison using national data.[1] Furthermore, the differences do not appear to be attributable to the lower level of income that characterizes single-parent families. White males, who lose approximately one-tenth of a year of education for every year in which they have no father in the home, experience the largest deficit in education, and white females experience the smallest; black men suffer greater educational deficiencies than black women. Spending the preschool years in a fatherless family is more damaging to later educational attainment, according to the results of the study, than is spending the elementary or high school years in that living arrangement.

Investigators from the University of Illinois examined data on some 2,500 individuals who were aged 14–24 when they and their mothers were first interviewed in the late 1960s as part of the National Longitudinal Survey of Labor Market Experience. The sample included 797 white men, 318 black men, 938 white women and 491 black women who were aged 26–38 in 1980, when the final data on which this study is based were collected. About 16 percent of the white men, 17 percent of the white women, 45 percent of the black men and 41 percent of the black women had spent at least part of their childhood in a fatherless household. (Children living in single-parent families headed by fathers were not included in the study.) Whites who had lived in a fatherless family had spent an average of five years in such a household prior to age 18; blacks had spent an average of eight years.

The analysis of the number of years of schooling completed was controlled for such variables as whether the mother had been employed outside the home, the number of siblings, the availability of reading materials (newspapers, magazines and library books) in the home, mother's education, father's education and region of residence, in addition to the number of years spent in a fatherless family and whether that experience occurred during the preschool, elementary school or high school years.

The researchers found that in general, the more years an individual spent in a fatherless family, the less education he or she attained; the finding was not significant for white women, however, and was only marginally so for black women. Overall, white men lost 0.095 years of schooling for every year spent in a fatherless family. Therefore, if they spent 5.1 years in a household without a father present—the average for white males—they attained half a year less of schooling than did their peers who spent no time in such a household. If they spent all 18 years of their childhood in that living arrangement, they completed 1.7 years' less education than did their peers who spent all 18 years in a two-parent family. If they lived in a single-parent family during their preschool years (which the researchers designated as the time between birth and 5.5 years of age), white males lost 0.254 years of schooling for each of those years. If the father was absent during the elementary or high school years, the amount of schooling eventually completed was not significantly different from that of other white males.

Of the four groups studied, black males were the second most severely affected by living in fatherless families; they lost 0.070 years of schooling for every year in that type of household and 0.288 years for every such year during the preschool period. Black women's education was reduced 0.041 years for every year in a fatherless family (a marginally significant effect) and 0.191 years for every preschool year in such a family. Although the results for white women were in the same direction as those for the other three groups, they were not statistically significant.

To determine whether the educational deprivation that occurs among children from fatherless families might be related to the lower average income that characterizes such households, the researchers added family income (as of 1966, when the respondents were in high school and first included in the survey) to the control variables. The results did not change appreciably. Even when compared with peers of similar income, white males lost a statistically significant amount of education for each year spent in fatherless households, as did black males. The results for black women were no longer significant, however, indicating that some of the educational deprivation they experience in association with having an absent father may be attributable to the lack of financial resources.

When the other control variables were examined, several were found to have a statistically significant effect on the amount of schooling obtained by children. In general, for children of both races and sexes, the amount of schooling declined with the number of siblings and increased with the number of types of reading materials in the home and with the mother's educational level. A few variables proved significant for whites only: White males obtained less education if their mothers worked than if they did not, and both white men and women obtained more education as the number of years of schooling completed by their fathers increased.

Living in a fatherless family clearly influences how much education a child will attain, conclude the researchers, but the size of the effect depends on how long the child lives in such a household, when during childhood the experience occurs and the sex of the child. Race, however, does not make a significant difference. The investigators speculate that the reduction in parental attention caused by a father's absence has less of an effect on female children than male children because the girls' primary role model (the mother) is still in the home. In addition, children are thought to be more susceptible to parental influence (or the absence of it) in the preschool years than later, when the influence of teachers and peers may rival that of the parent. Because of the increase in fatherless families in the United States, the results of the study should be viewed with concern, say the researchers, and thought given to policies that will counteract the negative effect these households have on educational achievement.

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Postcoital Pill: Rate Of Success Seems High, But Side Effects Common

Postcoital hormonal contraception appears to have averted 70 percent of pregnancies that might otherwise have occurred as a result of unprotected intercourse, according to a recent study among college women in Vancouver.[1] All of the women received medication within 72 hours of coitus. Of those for whom information on side effects was available, half had experienced no adverse reactions, while the other half had experienced nausea, vomiting or both.

The postcoital method used in the study consisted of two doses of oral contraceptive pills containing one mg dl-norgestrel and 100 mcg of ethinyl estradiol; the two doses were taken 12 hours apart. This regimen, commonly referred to as the Yuzpe method, has been administered at the student medical clinic of the University of British Columbia since 1974.* During the 1979–1985 study period, physicians gave postcoital medication to 867 women, 92 of whom had had more than one exposure to unprotected intercourse within the same menstrual cycle.

Data obtained for the study included age, menstrual cycle history, first day of last menstrual period, hours elapsed since coitus and whether the woman had had unprotected coitus previously in the current cycle. The investigators estimated the day of ovulation for women with regular cycles and instructed the women to return to the health clinic when menses resumed or within three weeks of taking the medication.

Patients averaged 22 years of age, and 72 percent of the women reported having regular menstrual cycles. The physicians administered treatment within 24 hours of unprotected intercourse for 31 percent of the women, 24–48 hours for 43 percent and 48–72 hours for 26 percent. Eleven percent of the patients were lost to follow-up; for the analysis, the investigators considered these women to be not pregnant, assuming that they would otherwise have returned for further treatment, as counseled.

Two percent of women with regular cycles became pregnant. On the basis of when intercourse occurred in the menstrual cycle, the researchers estimated that six percent would have become pregnant from the single coital exposure; the difference is statistically significant ($p < 0.002$). Of the women reporting irregular menses, two percent likewise became pregnant. Five percent of the women reporting more than one exposure in a cycle became pregnant, but the proportion was not significantly different from the two percent among those who experienced a solitary unprotected episode. The investigators found no relationship between the proportion of women who became pregnant and the time that had elapsed between unprotected sex and initiation of contraception.

Information on side effects was available for 593 women. Forty-nine percent reported no ill effects, 30 percent mentioned nausea alone and another 20 percent reported both nausea and vomiting. Other side effects occurred in no more than two percent of the women.

Among the women with regular cycles, menses started an average of seven days early when the postcoital medication was taken within two days prior to the expected date of ovulation. Medication administered from one day prior to two days after expected ovulation or during the second half of the menstrual cycle did not appreciably alter cycle length. Almost all women who were not pregnant experienced menses within three weeks of receiving treatment.

Although the researchers maintain that the two percent failure rate is "well below the expected pregnancy rates if no medication had been used," they conclude that there is a need to search for a more effective postcoital contraceptive medication with a lower incidence of side effects.

Reference

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Majority of Britons Say Abortion Choice Should Be Up to Woman and MD

Four out of five Britons believe that the decision about whether to discontinue a pregnancy should be a private matter between a woman and her physician. According to a recent poll conducted in Great Britain,[1] women are more likely than men to agree that the decision to have an abortion should be between patient and doctor, and married people are more likely than those who are unmarried to support this position. Semiskilled or unskilled workers are less likely than Britons of the managerial class to affirm this decision, but there is virtually no difference in support for this position by age.

In September 1987, interviewers questioned a sample of 1,442 adults 18 years of age and older who were drawn from 103 randomly selected electoral districts. The question they posed was, "Do you think that the choice as to whether or not to continue a pregnancy should or should not be left to the woman in consultation with her doctor?" Under the 1967 Abortion Act, which currently governs pregnancy termination in Great Britain, a woman must obtain agreement from two registered health practitioners that the pregnancy would pose a threat of physical or mental harm to her or her family or would produce a handicapped child.[2] In comparison, a woman in the United States can obtain an abortion for any personal or health-related reason without the agreement of any physician other than her own.

Of the total study participants, 80 percent answered affirmatively (a proportion close to that found among Americans similarly queried on attitudes toward abortion in a national poll conducted in 1985[3]). Eighty-four percent of the women surveyed and 73 percent of the men gave this response. There was little difference by age, with 80 percent of those 55 years and older and 78 percent of younger respondents in favor of a woman's right to choose an abortion in consultation with her doctor. However, while only seven percent of those aged 55 and older could not support this position, 12 percent of 35–54-year-olds and 13 percent of 18–34-year-olds answered the question negatively. Between nine and 13 percent of respondents in these age-groups were undecided.

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*Although the combination of hormones in the Yuzpe method is available in the United States in the Ovral birth control pill, postcoital hormonal contraceptives have not been widely prescribed here. Effective January 1988, however, the Planned Parenthood Federation of America approved the provision of postcoital hormonal contraceptives by its affiliates. (L. B. Tyrer, vice-president, Medical Affairs, Planned Parenthood Federation of America, New York, personal communication, June 30, 1988.)

Among married respondents, 80 percent supported the right of a woman to elect to discontinue a pregnancy in consultation with her doctor, as did 73 percent of the never-married and 78 percent of those who were widowed, divorced or separated; 11 percent of married respondents, 13 percent of the never-married and seven percent of the others did not agree with the position, and the remainder were undecided. Minor class differences on the issue emerged: Eighty-three percent of members of the managerial class, 78 percent of skilled manual workers and 74 percent of semiskilled and unskilled workers agreed with the position; only seven percent of the managerial class answered the question negatively, compared with 14 percent of semiskilled and unskilled workers. Among respondents who would have a voting preference for a prominent political party if elections were held immediately, 84 percent of those supporting the Conservative party responded affirmatively, compared with 76 percent of Labor supporters and 79 percent of those backing the Liberals and Social Democrats. Whereas seven percent of Conservative supporters disagreed with the position, 13 percent of Labor backers and 12 percent of Liberal supporters did not support it.

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3. "Polls Show Little or No Change in Attitudes on Abortion," *Family Planning Perspectives*, **17**:76, 1985.

Cohabiting Couples Have Frequent Intercourse And High Levels of Contraceptive Use, Study Finds

In 1982, an estimated 1.7 million American women, representing about six percent of all unmarried women aged 15–44 in the United States, were living with a partner of the opposite sex. As cohabitation among unmarried partners increases in American society, so does interest in its effects upon reproductive behavior. An analysis of data from the 1982 National Survey of Family Growth (NSFG) indicates that cohabitation increases the risk of pregnancy by raising the frequency of intercourse. However, whether that risk translates into higher fertility depends largely on reproductive intentions and contraceptive practice, which differ according to the cohabitant's marital history. Never-married cohabitants seem more likely to practice contraception and less likely to expect a birth in the near future than are their formerly married counterparts.[1]

Christine A. Bachrach, a researcher at the National Center for Health Statistics, grouped respondents who had ever had sexual intercourse into five categories: never-married and formerly married cohabitants, never-married and formerly married noncohabitants and currently married women. She then compared the groups of women according to level of sexual activity, contraceptive practice and birth intentions. Finally, using multiple regression analysis, she controlled for the influence of demographic and socioeconomic factors.

The results indicate that cohabiting women have intercourse significantly more frequently than do either married women or noncohabitants. Slightly over 60 percent of all unmarried cohabitants had intercourse either daily or several times a week, compared with 47 percent of married women and about 23 percent of unmarried noncohabitants. However, cohabitants are considerably more likely than noncohabitants to practice contraception, particularly if they have never been married. Whereas 82 percent of never-married cohabitants were using a method, 64 percent of formerly married cohabitants, 68 percent of married women and 52–55 percent of noncohabitants were doing so. Differences in the proportions of women using the most effective methods (sterilization, the pill and the IUD) show a similar pattern, but are smaller.

Despite their relatively high levels of contraceptive use, cohabiting women are more likely than married women to anticipate a future pregnancy. Fifty-eight percent of never-married cohabitants and 39 percent of their formerly married counterparts, compared with 30 percent of currently married women, said they expected to bear a child within five years. Among noncohabitants, 45 percent of the never-married and 22 percent of the formerly married expected a birth within the same time period.

The investigator conducted a multivariate analysis to determine whether age, race, parity and level of education accounted for any of the differences found. The results confirm that cohabitants and married women are substantially more likely than noncohabitants to have frequent intercourse. They also show that never-married cohabitants are much more likely to use contraceptives than are any other group examined. However, when the demographic variables were controlled for, currently married women and formerly married cohabitants were found to be more likely than never-married cohabitants to expect a birth in the near future. Although never-married cohabitants are significantly more likely to expect a baby than are their noncohabiting counterparts, there is no significant difference in childbearing intentions between formerly married cohabitants and noncohabitants.

According to Bachrach, her study shows that cohabitation contributes to the risk of pregnancy by increasing the frequency of intercourse. Whether cohabitation actually increases pregnancy rates and fertility is likely to depend on cohabitants' contraceptive behavior and birth intentions, both of which appear to differ according to previous marital status. Bachrach cautions, however, that since the 1982 NSFG data did not cover prior cohabitation, the actual effects of cohabitation on fertility remain speculative.

Reference

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Credits

Cover design: Alyssia Lazin, Lazin & Katalan.
Cover photo: Tom Grill, COMSTOCK, INC.
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Books in Review

The Fight for Legal Abortion

The New Politics of Abortion Reform
ed. by Joni Lovenduski and Joyce Outshoorn, Sage Publications, Beverly Hills and Newbury Park, 1986, $40.00 (cloth), $16.50 (paper), 175 pp.

Reviewed by Colin Francome

The New Politics of Abortion Reform is an interesting collection of presentations that were made at a meeting of political scientists, held in Salzburg in 1984. Two additional chapters were specially commissioned for the book. The conferees met, according to the editors of the proceedings, to discuss the "impact the abortion issue has had on a variety of liberal democratic political systems" [p. 1]. The countries under discussion were Belgium, Britain, France, Ireland, Italy, the Netherlands, Norway and the United States.

In an introductory chapter, the editors, Joni Lovenduski and Joyce Outshoorn—both political scientists, one teaching in Britain, the other in the Netherlands—suggest that three broad strategies have characterized government responses to abortion reform in developed countries. The first of these (which, given the reproductive context of the abortion issue, they rather unfortunately label a strategy of "abstinence") involves the refusal of governments and political leaders to take any position. In the second response, one of "postponement," governments simply defer the issue in the hope that pressure groups organized to bring about reform will be unable to maintain their momentum. The third political response, "de-politicization," defines abortion as a purely technical problem, which can then be referred to the experts for a solution.

Lovenduski and Outshoorn believe that this last strategy was the one adopted in the Scandinavian countries, in Britain and in some of the American states when the first early attempts at abortion reform were launched. In all these places, the approach taken was that abortion was simply a technical issue impacting on women's health. For this reason, the major aim of reform was to transfer the practice of abortion away from unsafe, back-street abortionists into the hands of properly trained and qualified doctors. However, they argue, once the feminists became involved, asserting women's "right" to abortion, their efforts undermined the respective governments' attempts to depoliticize the issue, and the cause of abortion reform became a mass movement.

In the chapters dealing with the experience of France and Italy, the authors explain how each of these two predominantly Catholic countries achieved successful reform of their abortion laws. In France, states Janine Mossuz-Lavau, the successful abortion legislation of 1975 was "conceived by a government of the Right . . . and . . . unchanged by a government of the Left, even though the Socialist and Communist deputies and senators had originally tried and failed to amend the bill quite substantially" [p. 87]. Abortion law reform succeeded in France for a number of reasons, according to the author. The existing laws and penalties were being broadly ignored by the courts anyway; the legislators were susceptible to the "humanitarian" appeal made by those who described the "appalling circumstances in which most back-street abortions were carried out" [p. 87]; and finally, French demographers were able to persuade the legislators that there was no relationship between France's declining birthrate and the growing practice of illegal abortion.

In Italy, political scientist Lesley Caldwell maintains, the strong role played by the feminists was the most significant factor in the movement toward abortion reform, which finally achieved success in 1978. Before then, illegal abortions were punishable by sentences of from two to five years, both for the woman concerned and for the person performing the operation. As in France, the political right wing linked abortion to the unwelcome possibility of population decline.

According to estimates made at the time, from 800,000 to three million illegal abortions were carried out every year in Italy, and there was a general lack of access to contraceptive information and services, especially for poor women. However, despite the Communist party's "explicit commitment to the cause of women's emancipation" [p. 107], it did not agitate for abortion law reform because strategists considered it more important to protect the party's alliances with the Catholic-dominated Christian Democrats and with the strongly Catholic working classes. Thus, it was left to the feminists, who had already played an important part in the 1974 referendum on divorce, to "open up the whole arena of discussion of the family and relations between men and women." Such debate, according to the author, "offered a sustained and irreversible challenge to the traditional power bases in Italy and their location in the strength of Catholicism and its virtually unchallenged hegemony in the arena of familial and sexual relations" [p. 114].

The most important initiatives taken by the Italian feminists included the practice of abortion performed by lay workers in feminist clinics (which challenged legal prosecution and forced confrontation with the opponents of law reform) and the organization of well-publicized trips to England for women seeking legal abortions.

The Dutch experience was very different from that of either France or Italy, mainly because in the Netherlands, the widespread, organized provision of abortions preceded any change in the law. This practice was achieved through the establishment by Stimezo (the Foundation for Medically Responsible Interruption of Pregnancy) of a nationally accepted network of clinics, in the early 1970s, even though the country's restrictive abortion

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laws dating from the 19th century were not officially repealed until 1981. Outshoorn suggests that this development was possible because in Dutch political life, all "the 'rules' broke down at the end of the 1960s, with the demise of the 'politics of accommodation' " [p. 16]. In addition, the women's liberation movement was urging Dutch women to take control over their own bodies, and opposition to abortion reform would have required a battle against the status quo, as well as the formulation of criteria to define abortion need, which would have been highly unpopular politically.

Ireland provides an interesting case study of the failure of law reform. In 1980, a Gallup poll asked women in Britain, Ireland and the United States whether they thought abortion should be illegal in all circumstances. Twelve percent of British women, 18 percent of American women and 80 percent of Irish women agreed that it should. Author Vicki Randall points out that the reasons for the strongly conservative aspect of Catholicism in Ireland have always been somewhat obscure, but she suggests that the tradition of passing family property on intact to the oldest son, who would then be able to marry, implies that the remaining sons and all the daughters would have to remain celibate. Furthermore, she suggests, the resurgence of Irish Catholicism, with its emphasis on the sinfulness of sex, coincided with the era of Victorian prudery. In addition, Ireland remained relatively isolated from foreign influences for very many years into the late 20th century. To these observations, I might add that it is likely that the Irish residents who found their country's sexual repressiveness most intolerable were the citizens most likely to emigrate. We know that Irish immigrants in Britain and the United States hold much more liberal social views than do the compatriots they left behind.

The chapter by Lovenduski on the reform of abortion law in Great Britain—the case that is the most familiar to me—makes a broad claim with which I disagree. The author maintains that the early proponents of abortion law reform failed or declined to argue for change on the grounds of a woman's right to control her own fertility. Rather, they argued for the "extension of the number of categories of women for whom abortion should be made available" [p. 49]. As a result of this failure, she suggests, even after 21 years of liberalization, attempts are still being made to repeal the 1967 Abortion Act on "moral" grounds, because the fight for women's right to choose was not won when it should have been, right at the start of the campaign. I would argue with Lovenduski that the decision made in the 1960s to downplay the right to abortion on demand was the correct tactical one in the context of those times, and that the only reason why abortion is still a political issue in Britain is that certain members of Parliament have decided it will be so.

The section on abortion reform in the United States is decidedly weak, comprising only part of a chapter devoted to both the United States and Britain. In particular, no mention is made of the 1970 New York State abortion law, which was an important landmark since it contained no residential qualifications. This law gave U.S. women from all over the country the right to travel to New York to obtain a legal abortion, which was an important development in extending abortion rights throughout the country.

In a concluding chapter, Evert Ketting and Philip van Praag compare abortion legislation in 10 countries and argue, on the basis of the discrepancies they find "between the intentions of the law and its working in practice," that the "practical relevance of abortion legislation often turns out to be quite marginal" [p. 154]. This is an interesting point, but it would have been more persuasive if the participants at the conference had been given the opportunity to debate this rather provocative perspective.

The editors of this volume are clearly in support of Ketting's thesis. They point out that although both Sweden and the United States have liberal abortion policies, in the first of these countries, the "scrupulous provision of adequate facilities makes access to abortion a reality for women," whereas in the second, "access to abortion is often severely restricted." They conclude, convincingly I think, that the "most important variable in the availability of abortion . . . is not the law, but the independent existence of a good network of medical facilities, organized either by the state or [by] the private sector" [p. 4].

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ORAL CONTRACEPTIVE (O.C.) AGENTS

Indications Prevention of pregnancy. *DOSE-RELATED RISK OF THROMBOEMBOLISM.* Because studies have shown a positive association between OC estrogen dose and risk of thromboembolism, it is prudent to minimize estrogen exposure. Prescribe an OC with the least amount of estrogen compatible with an acceptable pregnancy rate and patient acceptance. Start new users on OCs containing 0.05 mg or less of estrogen.

Contraindications 1. Known or suspected pregnancy (see Warning #5). 2. Thrombophlebitis or thromboembolic disorders. 3. Past history of deep vein thrombophlebitis or thromboembolic disorders. 4. Undiagnosed abnormal genital bleeding. 5. OCs should not be used by women who have or have had any of the following: a. cerebral vascular or coronary artery disease, including myocardial infarction. b. known or suspected carcinoma of the breast. c. known or suspected estrogen dependent neoplasia. d. benign or malignant liver tumor that developed during use of OCs or other estrogen containing products.

WARNINGS: Cigarette smoking increases the risk of serious cardiovascular side effects from OC use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use OCs should be strongly advised not to smoke.

The use of OCs is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, liver tumor, gall bladder disease, visual disturbances, fetal abnormalities, and hypertension. Practitioners prescribing OCs should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems:* An increased risk of thromboembolic and thrombotic disease associated with OC use is established. One study demonstrated an increased relative risk for fatal venous thromboembolism and several studies demonstrated it for non-fatal venous thromboembolism. They estimate that OC users are 4-11 times more likely than nonusers to develop these diseases without evident cause. One British study reported an excess death rate of 40% in OC users, most of which resulted from cardiovascular disease. Another British study showed a lower death rate in OC users than controls; an increase in cardiovascular deaths was seen but was not statistically significant. A U.S. prospective study failed to disclose increased mortality rates from cardiovascular disorders, but a subset analyzed as a retrospective, case-control study showed significant increases in venous thromboembolism. CEREBROVASCULAR DISORDERS. Two American studies demonstrated an increased relative risk for stroke not shown in prior British studies. In an American study of cerebrovascular disorders in women with and without predisposing causes, relative risk of hemorrhagic stroke was estimated as 2.0 times greater and thrombotic stroke as 4-9.5 times greater in users than nonusers. A British long-term follow-up study reported in 1976 a highly significant association between OC use and stroke. Another study had suggested an association in 1974, but the number of cases was too small to estimate the risk. Subarachnoid hemorrhage has been shown to be increased by OC use in British and American studies. Smoking alone increases incidence of these accidents; smoking and pill use appear to increase risk more than either alone.

MYOCARDIAL INFARCTION (MI). Increased relative risk of MI associated with OC use has been reported. One British study found that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia) the higher the risk of developing MI, regardless of OC use. OCs were an additional risk factor. In terms of relative risk, it has been estimated that nonsmoking OC users (smoking is considered a major predisposing condition to MI) are twice as likely to have a fatal MI as nonsmoking nonusers. OC users who are smokers have a 5-fold increased risk of fatal infarction compared to nonsmoking users, and a 10-12-fold increased risk compared to nonsmoking nonusers. The number of cigarettes smoked is important. In determining the importance of these relative risks, baseline rates for various age groups must be considered. (Estimates are based on British vital statistics which show acute MI death rates 2-3 times less than in the U.S. so U.S. death rates could be higher.) Importance of other predisposing conditions in determining relative and absolute risks has not been quantified; other synergistic actions may exist. RISK OF DOSE. Using data from several national adverse reaction reporting systems, British investigators concluded that risk of thromboembolism, including coronary thrombosis, is directly related to estrogen dose in OCs. OCs with 0.1 mg or more of estrogen were associated with a higher risk of thromboembolism than those containing 0.05-0.08 mg but quantity of estrogen may not be the sole factor. This was supported by a U.S. study. A British study found a positive association between dose of progestogen or estrogen and certain thromboembolic conditions. Swedish authorities noted decreased reporting of thromboembolic episodes when higher estrogen preparations were no longer prescribed. Careful epidemiological studies to determine degree of thromboembolic disease risk associated with progestogen-only OCs have not been done. Thromboembolic disease has been reported in women using these products, and they should not be considered free of excess risk. PERSISTENCE OF RISK. Two studies have suggested an increased risk may persist for 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI; another study suggested the persistence of risk for subarachnoid hemorrhage. ESTIMATE OF EXCESS MORTALITY FROM CIRCULATORY DISEASES. A large British prospective study estimated mortality rate per 100,000 women per year from circulatory system diseases for OC users and nonusers according to age, smoking habits, and duration of use. The overall annual excess death rate for OC users was estimated to be 20/100,000 (ages 15-34–5/100,000; ages 35-44–33/100,000; ages 45-49–140/100,000). Risk is concentrated in long-term users and in smokers, and may persist after OC discontinuation. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all occurred in women 35 or older. An update provided the following rates: ages 15-34–1/6700 for nonsmokers and 1/2000 for smokers; ages 45 and over–1/2500 for nonsmokers and 1/500 for smokers. Risk appeared to increase with parity, but not with duration of use. Until more women under 35 with continuous use for 5 or more years are available, it is not possible to assess relative risk for this age group. Data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. Estimates include combined risk of the contraceptive method (e.g., thromboembolic and thrombotic disease for OCs) plus risk attributable to pregnancy or abortion if the method fails (which varies with the effectiveness of the contraceptive method). The study concluded that mortality associated with all contraceptive methods is below that of childbirth, except for OCs in women over 40 who smoke. (Rates given for pill only/smokers for each age are for smokers as a class. For "heavy" smokers (more than 15 cigarettes a day), the rates would be about double; for "light" smokers (less than 15), about half.) The lowest mortality is with the condom or diaphragm backed up by early abortion. The study also concluded that OC users who smoke, especially over 30, have greater mortality risk than OC users who do not smoke.

Risk of thromboembolic and thrombotic disease associated with OCs increases with age after 30 and for MI is further increased by hypertension, hyperlipidemias, obesity, diabetes, or history of preeclamptic toxemia, and especially by smoking. The following chart gives a gross estimate of risk of death from circulatory disorders associated with OC use.

SMOKING HABITS AND OTHER PREDISPOSING CONDITIONS—RISK ASSOCIATED WITH USE OF OCs

Age	Below 30	30-39	40 +
Heavy smokers	C	B	A
Light smokers	D	C	B
Nonsmokers (no predisposing conditions)	D	C,D	C
Nonsmokers (other predisposing conditions)	C	C,B	B,A

A–Use associated with very high risk.
B–Use associated with high risk.
C–Use associated with moderate risk.
D–Use associated with low risk.

Physician and patient should be alert to earliest manifestations of thromboembolic and thrombotic disorders (e.g., thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). Should any of these occur or be suspected, discontinue OC immediately. A 4-6 fold increased risk of post-surgery thromboembolic complications has been reported in OC users. If feasible, discontinue OCs at least 4 weeks before surgery associated with increased risk of thromboembolism or prolonged immobilization. Before resuming OC after major surgery or bedrest, balance risks of post-surgery thromboembolic complications with contraceptive needs. Data suggest varicose veins substantially increase risk of superficial venous thrombosis of the leg, the risk depending on the severity of the varicosities. 2. *Ocular Lesions:* Neuro-ocular lesions such as optic neuritis or retinal thrombosis have been associated with OC use. Discontinue OC if there is unexplained, sudden, or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions; and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma:* Long-term continuous administration of natural or synthetic estrogen in certain animals increases certain tumors, benign or malignant, such as breast, cervix, vagina, uterus, ovary, pituitary and liver. Certain synthetic progestogens, none currently in OCs, increase the incidence of mammary nodules, benign and malignant, in dogs. Several retrospective case-control studies reported an increased relative risk (3.1-13.9 times) associating endometrial carcinoma with the prolonged use of estrogens in postmenopausal women. One publication reported the first 30 cases submitted to the registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the adenocarcinomas found in women without predisposing risk factors for adenocarcinoma of the endometrium (e.g., irregular bleeding when OCs were first given, polycystic ovaries), nearly all occurred in women who had used sequential OCs, which are no longer marketed. No statistical association has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs, although individual cases have been reported. Studies have shown no increased risk of breast cancer to OC or estrogen users. One study found no overall increased risk of breast cancer in OC users but a greater risk was suggested for OC users with documented benign breast disease and for long-term (2-4 years) users. Another study found a history of breast cancer among grandmothers or aunts was significantly more frequent among breast cancer patients who had used an OC continuously for one or more years than among nonusers with breast cancer. One other study indicated an increasing risk of breast cancer in women taking menopausal estrogens, which increased with duration of follow-up. One author suggests that extended (over 6 years) OC use prior to first full term pregnancy was associated with a significant relative risk of breast cancer. A reduced occurrence of benign breast tumors in OC users has been well documented. One study reported malignant melanoma more frequently in OC users than controls and suggests an increased incidence of urinary tract and thyroid cancers. A prospective study of women with cervical dysplasia found an increase in severity and conversion to cancer *in situ* in OC users compared to nonusers. This became statistically significant after 3-4 years of use. Nonreversal of dysplasia within the first 6 months of pill use was suggested to predict progression after prolonged exposure. One study disclosed an increased risk of cancer of the cervix (largely carcinoma *in situ*) in OC users under 40, particularly those who had used OCs over 4 years. There have been other reports of microglandular hyperplasia of the cervix in OC users. One study reported an association between OC use and endocervical adenocarcinoma. In summary, there is no confirmed evidence from human studies of increased risk of cancer associated with OCs. Close clinical surveillance of all OC users is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, take appropriate diagnostic measures to rule out malignancy. Monitor OC users with a strong family history of breast cancer or who have breast nodules, fibrocystic disease or abnormal mammograms with particular care. 4. *Liver Tumors:* Sudden severe abdominal pain or shock may be due to rupture and hemorrhage of a liver tumor. There have been reports associating benign or malignant liver tumors with short-term and long-term OC use. One study reported use of OCs with high hormonal potency and age over 30 may further increase risk of hepatocellular adenoma. Two studies relate risk with duration of use, risk being much greater after 4 or more years of use. Long-term OC users have an estimated annual incidence of hepatocellular adenoma of 3-4/100,000. Although an uncommon lesion, it should be considered in women presenting with an "acute abdomen". The tumor may cause serious or fatal hemorrhage. Patients with liver tumors have demonstrated variable clinical features which may make preoperative diagnosis difficult. Some cases presented because of right upper quadrant masses, while most had signs and symptoms of acute intraperitoneal hemorrhage. Routine radiological and laboratory studies may not be helpful. Liver scans may show a focal defect. Hepatic arteriography may be useful in diagnosing primary liver neoplasm. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring:* Use of female sex hormones—estrogenic and progestational agents—during early pregnancy may seriously damage the offspring. Females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated to be of the order of 1/1000 exposures or less. Although there is no evidence that OCs further enhance the risk of developing this type of malignancy, such OC users should be monitored with particular care. A high percentage of women exposed to diethylstilbestrol (30-90%) have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are a precursor of vaginal malignancy. Male children so exposed may develop urogenital tract abnormalities. Although similar data are not available on other estrogens, it cannot be presumed that they would not induce similar changes. Increased risk of congenital anomalies, including heart and limb defects, has been reported following use of sex hormones, including OCs, in pregnancy. One case-control study estimated a 4.7-fold increased relative risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some exposures involved only a few days of treatment. Data suggest risk of limb-reduction defects in exposed fetuses is somewhat less than 1/1000 live births. In a large prospective study, cardiovascular defects in children born to women who received female hormones, including OCs, during early pregnancy occurred at 18.2/1000 births, compared to 7.8/1000 for children not so exposed *in utero*. These results are statistically significant. A Welsh study found a statistically significant excess of neural tube defects among offspring of prior OC users (within 3 months) than among controls. The incidence of twin births may be increased for women who conceive shortly after discontinuing OC use. In the past, female sex hormones were used during pregnancy in an attempt to treat threatened or habitual abortion. There is evidence that estrogens are ineffective, and there is no evidence from well controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. If the patient has not adhered to the prescribed schedule, consider possible pregnancy at the first missed period (or 45 days from the last menstrual period if progestogen-only OCs are used) and discontinue OC use until pregnancy has been ruled out. For any patient who has missed two consecutive periods, rule out pregnancy before continuing the OC. If pregnancy is confirmed, tell the patient about potential risks to the fetus and discuss advisability of continuing the pregnancy. Women who discontinue OCs to become pregnant should use an alternate form of contraception for a period of time before attempting to conceive. A 3-month period is supported by a study suggesting increased frequency of neural tube defects in women impregnated during the first 3 months after cessation of OC use. Do not use progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding as a pregnancy test. 6. *Gall Bladder Disease:* Studies report increased risk of gall bladder disease in OC or estrogen users. In one study, an increased risk appeared after 2 years of use and doubled after 4-5 years. In another study, an increased risk was apparent between 6 and 12 months. 7. *Carbohydrate and Lipid Metabolic Effects:* Because a decrease in glucose tolerance has been observed in a significant percentage of patients on OCs, prediabetic and diabetic OC users should be carefully observed. An increase in triglycerides and total phospholipids has been observed in OC users but its clinical significance is unknown. 8. *Elevated Blood Pressure:* An increase in blood pressure has been reported with OC use. Hypertension may occur within a few months of beginning OCs. In the first year of use, incidence of hypertension may be no higher in OC users than in nonusers. Incidence in users increases with exposure and in the fifth year of use is 2.5-3 times that in the first year. Age is strongly correlated with hypertension in OC users. Women with a history of elevated blood pressure (hypertension), preexisting renal disease, history of toxemia or elevated blood pressure during pregnancy, familial tendency to hypertension or its consequences," or history of excessive weight gain or fluid retention during the menstrual cycle may be more likely to develop elevated blood pressure when given OCs and should be monitored closely. Even though elevated blood pressure may remain within the "normal" range, closely watch elevations, particularly for women with other risk factors for cardiovascular disease or stroke. High blood pressure may or may not persist after OC discontinuation. 9. *Headache:* Discontinue OC and evaluate the cause of onset or exacerbation of migraine or development of a new pattern of headache which is recurrent, persistent, or severe. 10. *Bleeding Irregularities:* Breakthrough bleeding, spotting, and missed menses often make users discontinue OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, consider nonfunctional causes. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, use adequate diagnostic measures to rule out pregnancy or malignancy. If pathology has been excluded, time or another formulation may solve the problem. While potentially useful in minimizing menstrual irregularity, change to an OC with a higher estrogen content only if necessary since this may increase the risk of thromboembolic disease. Women with a history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may tend to remain anovulatory or to become amenorrheic after OC discontinuation. Women with these preexisting problems should be advised of this and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may occur in women without previous irregularities. A higher incidence of galactorrhea and of pituitary tumors (e.g., adenomas) has been associated with amenorrhea in former users compared with nonusers. One study reported a 16-fold increased incidence of pituitary prolactin-secreting tumors among patients with postpill amenorrhea when galactorrhea was present. 11. *Infertility:* There is evidence of impairment of fertility in women discontinuing OCs in comparison with other contraceptive methods, which appears to be independent of duration of use. While impairment diminishes with time, there is an appreciable difference in the results in nulliparous women for OC and other groups 30 months after discontinuation of birth control. For parous women the difference is not apparent 30 months after cessation of contraception. 12. *Ectopic Pregnancy:* Ectopic as well as intrauterine pregnancy may occur in OC failure. In progestogen-only OC failures, the ratio of ectopic to intrauterine pregnancies is higher than in nonusers, since the drugs are more effective in preventing intrauterine than ectopic pregnancies. 13. *Breast Feeding:* OCs in the postpartum period may interfere with lactation by decreasing quantity and quality of breast milk. A small fraction of OC hormonal agents has been identified in milk of mothers receiving OCs. Effects, if any, on the breast-fed child have not been determined. If feasible, defer OC use until the infant has been weaned.

Precautions *GENERAL:* 1. Take a complete medical and family history before starting OCs. Pretreatment and periodic physical exams should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant lab tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical. 2. Under the influence of estrogen-progestogen preparations, preexisting uterine leiomyomata may enlarge. 3. Observe patients with a history of psychic depression and discontinue OCs if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the OC and use an alternate method of contraception to determine whether the symptom is drug related. 4. OCs may cause some fluid retention. Prescribe with caution, and only with careful monitoring, in patients with conditions that might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma or cardiac, hepatic or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence while using OCs. Discontinue OC if jaundice develops. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution in such patients. 7. OC users may have disturbances in normal tryptophan metabolism that may result in a relative pyridoxine deficiency. The clinical significance is unknown. 8. Serum folate levels may be depressed by OC use. Since the pregnant woman is predisposed to folate deficiency and incidence of folate deficiency increases with increasing gestation, if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and related complications. 9. Advise the pathologist of OC use when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs. For example: a. Increased sulfobromophthalein retention. b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability. c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG, free T4 concentration is unaltered. d. Decreased pregnanediol excretion. e. Reduced response to metyrapone test. f. Increased phospholipids and triglycerides. g. Temporarily decreased glucose tolerance. 11. Contact lens wearers who develop visual changes or changes in lens tolerance should be assessed by an ophthalmologist and temporary or permanent cessation of wear considered. DRUG INTERACTIONS. OCs may be less effective and there may be increased breakthrough bleeding from interactions with rifampin, isoniazid, ampicillin, tetracycline, neomycin, penicillin V, chloramphenicol, sulfonamides, nitrofurantoin, barbiturates, phenytoin, primidone, analgesics, tranquilizers, antimigraine preparations, antihistamines, and griseofulvin. OCs may alter effectiveness of such other drugs as oral anticoagulants, anticonvulsants, tricyclic antidepressants, antihypertensive agents (e.g., guanethidine), vitamins, hypoglycemic agents, tranquilizers, hypnotic preparations, theophylline, and beta blockers. *CARCINOGENESIS* See Warnings. *PREGNANCY* Pregnancy category X. See Contraindications and Warnings. *NURSING MOTHERS* See Warnings.

Adverse Reactions An increased risk of the following serious adverse reactions has been associated with OC use (see Warnings): thrombophlebitis, thrombosis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, mesenteric thrombosis, liver tumors, cerebral hemorrhage, hypertension, gall bladder disease, congenital anomalies, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis, Raynaud's disease, arterial thromboembolism. The following adverse reactions have been reported in OC users and are believed to be drug related: bleeding irregularities (breakthrough bleeding, spotting, missed menses during treatment, amenorrhea after treatment), gastrointestinal symptoms (nausea, vomiting, bloating, abdominal cramps, colitis), dysmenorrhea, infertility after discontinuance of treatment, edema, chloasma or melasma which may persist after drug is discontinued, breast changes (tenderness, enlargement, and secretion), intolerance to contact lenses, changes in corneal curvature (steepening), change in weight (increase or decrease), change in cervical erosion and cervical secretion, possible diminution of lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, prolactin-secreting pituitary tumors, chilblains. The following adverse reactions have been reported in OC users and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of hair, erythema multiforme, erythema nodosum, hemorrhagic eruptions, vaginitis, porphyria, impaired renal function, malignant nephrosclerosis (hemolytic uremic syndrome), malignant hypertension, acute renal failure. **Information for the Patient** (See Patient Package Insert).

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Family Planning Perspectives

Volume 20, Number 4, July/August 1988

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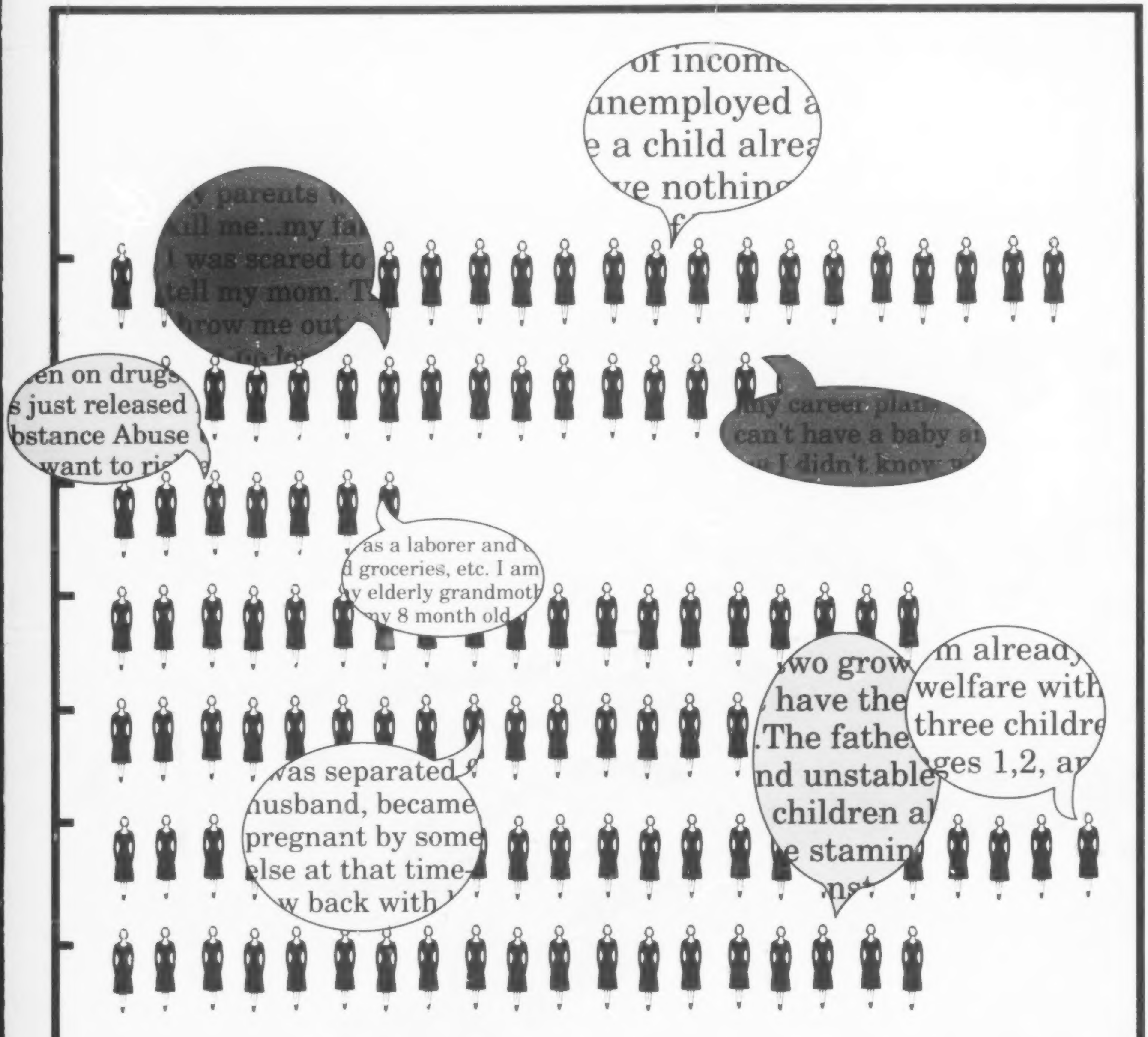
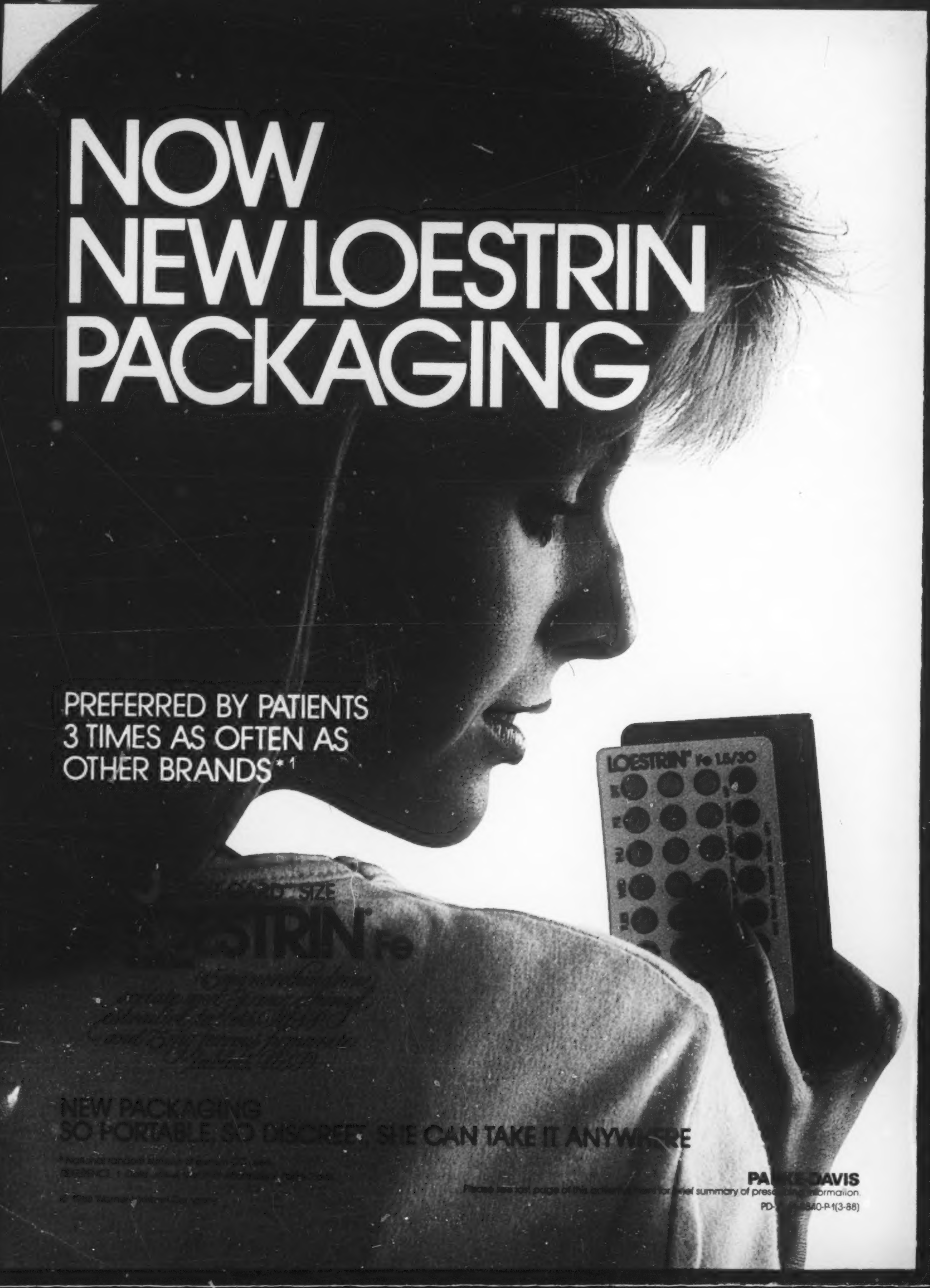
U.S. Women Who Obtain Abortions: Who and Why?





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(Norethindrone Acetate and Ethinyl Estradiol Tablets, USP and Ferrous Fumarate Tablets, USP)

Before prescribing, please see full prescribing information. A Brief Summary follows:
INDICATIONS AND USAGE: Loestrin 21 and Loestrin Fe are indicated for the prevention of pregnancy in women who elect to use oral contraceptives (OCs) as a method of contraception. **Dose-Related Risk of Thromboembolism from Oral Contraceptives:** Two studies have shown a positive association between the dose of estrogens in oral contraceptives and the risk of thromboembolism. For this reason, it is prudent and in keeping with good principles of therapeutics to minimize exposure to estrogen. The OC product prescribed for any given patient should be that product which contains the least amount of estrogen that is compatible with an acceptable pregnancy rate and patient acceptance. It is recommended that new acceptors of OCs be started on preparations containing 0.05 mg or less of estrogen. **CONTRAINDICATIONS:** OCs should not be used in women with any of the following conditions: 1. Thrombophlebitis or thromboembolic disorders; 2. A past history of deep vein thrombophlebitis or thromboembolic disorders; 3. Cerebral vascular or coronary artery disease; 4. Known or suspected carcinoma of the breast; 5. Known or suspected estrogen-dependent neoplasia; 6. Undiagnosed abnormal genital bleeding; 7. Known or suspected pregnancy (see Warning No. 5); 8. Benign or malignant liver tumor which developed during the use of oral contraceptives or other estrogen-containing products.

WARNINGS

> **Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.**
>
> The use of oral contraceptives is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, and hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems.* An increased risk of thromboembolic and thrombotic disease associated with the use of OCs is well established. Three principal studies in Great Britain and three in the United States have demonstrated an increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic. These studies estimate that users of OCs are 4 to 11 times more likely than nonusers to develop these diseases without evident cause. **Cerebrovascular Disorders:** In a collaborative American study of cerebrovascular disorders in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than in nonusers and the risk of thrombotic stroke was 4 to 9.5 times greater in users than in nonusers. **Myocardial Infarction:** An increased risk of myocardial infarction associated with the use of OCs has been reported, confirming a previously suspected association. These studies, conducted in the United Kingdom, found, as expected, that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia), the higher the risk of developing myocardial infarction, regardless of whether the patient was an OC user or not. OCs, however, were found to be a clear additional risk factor. In terms of relative risk, it has been estimated that OC users who do not smoke (smoking is considered a major predisposing condition to myocardial infarction) are about twice as likely to have a fatal myocardial infarction as nonusers who do not smoke. OC users who are also smokers have about a 5-fold increased risk of fatal infarction compared to users who do not smoke, but about a 10- to 12-fold increased risk compared to nonusers who do not smoke. Furthermore, the amount of smoking is also an important factor. In determining the importance of these relative risks, however, the baseline rates for various age groups must be given serious consideration. The importance of other predisposing conditions mentioned above in determining relative and absolute risks has not as yet been quantified; it is quite likely that the same synergistic action exists, but perhaps to a lesser extent. **Risk of Dose:** In an analysis of data derived from several national adverse reaction reporting systems, British investigators concluded that the risk of thromboembolism, including coronary thrombosis, is directly related to the dose of estrogen used in oral contraceptives. Preparations containing 100 mcg or more of estrogen were associated with a higher risk of thromboembolism than those containing 50 to 80 mcg of estrogen. Their analysis did suggest, however, that the quantity of estrogen may not be the sole factor involved. This finding has been confirmed in the United States. Careful epidemiological studies to determine the degree of thromboembolic risk associated with progestogen-only OCs have not been performed. Cases of thromboembolic disease have been reported in women using these products, and they should not be presumed to be free of excess risk. **Persistence of Risk:** In confirmation of earlier reports, two studies have suggested that an increased risk may persist for as long as 6 years after discontinuation of oral contraceptive use for cerebrovascular disease and 9 years for myocardial infarction. In addition, a prospective study suggested the persistence of risk for subarachnoid hemorrhage. **Estimate of Excess Mortality from Circulatory Diseases:** A large prospective study carried out in the U.K. estimated the mortality rate per 100,000 women per year from diseases of the circulatory system for users and nonusers of OCs according to age, smoking habits, and duration of use. The overall excess death rate annually from circulatory diseases for OC users was estimated to be 20 per 100,000 (ages 15 to 34 – 5/100,000; ages 35 to 44 – 33/100,000; ages 45 to 49 – 140/100,000), the risk being concentrated in older women, in those with a long duration of use, and in cigarette smokers. It was not possible, however, to examine the interrelationships of age, smoking, and duration of use, nor to compare the effects of continuous versus intermittent use. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all of these deaths occurred in women 35 or older. Until larger numbers of women under 35 with continuous use for 5 or more years are available, it is not possible to assess the magnitude of the relative risk for this younger age group. The available data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. The estimates of risk of death for each method include the combined risk of the contraceptive method (eg, thromboembolic and thrombotic disease in the case of oral contraceptives) plus the risk attributable to pregnancy or abortion in the event of method failure. This latter risk varies with the effectiveness of the contraceptive method. The study concluded that the mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of OCs in women over 40 who smoke. (The rates given for pill only/smokers for each age group are for smokers as a class. For "heavy" smokers [more than 15 cigarettes a day] the rates given would be about double; for "light" smokers [less than 15 cigarettes a day] about 50 percent.) The lowest mortality is associated with the condom or diaphragm backed up by early abortion. The risk of thromboembolic and thrombotic disease associated with OCs increases with age after approximately age 30 and, for myocardial infarction, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of preeclamptic toxemia and especially by cigarette smoking. The physician and the patient should be alert to the earliest manifestations of thromboembolic and thrombotic disorders (eg, thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). Should any of these occur or be suspected, the drug should be discontinued immediately. A four- to six-fold increased risk of postsurgery thromboembolic complications has been reported in OC users. If feasible, OCs should be discontinued at least 4 weeks before surgery of a type associated with an increased risk of thromboembolism or prolonged immobilization. 2. *Ocular Lesions.* There have been reports of neuro-ocular lesions, such as optic neuritis or retinal thrombosis, associated with the use of OCs. Discontinue OC medication if there is unexplained, sudden or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma.* Long term continuous administration of either natural or synthetic estrogen in certain animal species increases the frequency of carcinoma of the breast, cervix, vagina, and liver. Certain synthetic progestogens, none currently contained in OCs, have been noted to increase the incidence of mammary nodules, benign and malignant, in dogs. In humans, three case control studies have reported an increased risk of endometrial carcinoma associated with the prolonged use of exogenous estrogen in postmenopausal women. One publication reported on the first 21 cases submitted by physicians to a registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the cases found in women without predisposing risk factors for adenocarcinoma of the endometrium (eg, irregular bleeding at the time OCs were first given, polycystic ovaries), nearly all occurred in women who had used a sequential OC. These products are no longer marketed. No evidence has been reported suggesting an increased risk of endometrial cancer in users of conventional-combination or progestogen-only OCs. Several studies have found no increase in breast cancer in women taking OCs or estrogens. One study, however, while also noting no overall increased risk of breast cancer in women treated with OCs, found an excess risk in the subgroups of OC users with documented benign breast disease. A reduced occurrence of benign breast tumors in users of OCs has been well-documented. In summary, there is at present no confirmed evidence from human studies of an increased risk of cancer associated with OCs. Close clinical surveillance of all women taking OCs is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer or who have breast nodules, fibrocystic disease, or abnormal mammograms should be monitored with particular care if they elect to use OCs instead of other methods of contraception. 4. *Hepatic Tumors.* Benign hepatic adenomas have been found to be associated with the use of OCs. One study showed that OC formulations with high hormonal potency were associated with a higher risk than lower potency formulations. Although benign, hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage. This has been reported in short-term as well as long-term users of OCs. Two studies relate risk with duration of use of the contraceptive, the risk being much greater after 4 or more years of OC use. While hepatic adenoma is a rare lesion, it should be considered in women presenting abdominal pain and tenderness, abdominal mass or shock. A few cases of hepatocellular carcinoma have been reported in women taking oral contraceptives. The relationship of these drugs to this type of malignancy is not known at this time. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring.* The use of female sex hormones – both estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. It has been shown that females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated to be of the order of 1 in 1,000 exposures or less. Although there is no evidence at the present time that OCs further enhance the risk of developing this type of malignancy, such patients should be monitored with particular care if they elect to use OCs instead of other methods of contraception. Furthermore, a high percentage of such exposed women (from 30% to 90%) have been found to have epithelial changes of the vagina and cervix. Although these changes are histologically benign, [illegible] not known whether this condition is a precursor of vaginal malignancy. Male children so exposed may develop abnormalities of the urogenital tract. Although similar data are not available with the use of other estrogens, it cannot be presumed that they would not induce similar changes. An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with the use of sex hormones, including OCs, in pregnancy. One case control study has estimated a 4.7-fold increase in risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some of these exposures were very short and involved only a few days of treatment. The data suggest that the risk of limb-reduction defects in exposed fetuses is somewhat less than 1 in 1,000 live births. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. It is recommended that for any patient who has missed two consecutive periods, pregnancy should be ruled out before continuing the contraceptive regimen. If the patient has not adhered to the prescribed schedule, the possibility of pregnancy should be considered at the time of the first missed period, and further use of OCs should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus and the advisability of continuation of the pregnancy should be discussed in the light of these risks. It is also recommended that women who discontinue oral contraceptives with the intent of becoming pregnant use an alternate form of contraception for a period of time before attempting to conceive. Many clinicians recommend 3 months although no precise information is available on which to base this recommendation. The administration of progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy. 6. *Gallbladder Disease.* Studies report an increased risk of surgically confirmed gallbladder disease in users of OCs and estrogens. In one study, an increased risk appeared after 2 years of use and doubled after 4 or 5 years of use. In one of the other studies, an increased risk was apparent between 6 and 12 months of use. 7. *Carbohydrate and Lipid Metabolic Effects.* A decrease in glucose tolerance has been observed in a significant percentage of patients on OCs. For this reason, prediabetic and diabetic patients should be carefully observed while receiving OCs. An increase in triglycerides and total phospholipids has been observed in patients receiving OCs. The clinical significance of this finding remains to be defined. 8. *Elevated Blood Pressure.* An increase in blood pressure has been reported in patients receiving OCs. In some women, hypertension may occur within a few months of beginning OC use. In the first year of use, the prevalence of women with hypertension is low in users and may be no higher than that of a comparable group of nonusers. The prevalence in users increases, however, with longer exposure, and in the fifth year of use is two and a half to three times the reported prevalence in the first year. Age is also strongly correlated with the development of hypertension in OC users. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure when given OCs. Hypertension that develops as a result of taking OCs usually returns to normal after discontinuing the drug. 9. *Headache.* The onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of OCs and evaluation of the cause. 10. *Bleeding Irregularities.* Breakthrough bleeding, spotting and amenorrhea are frequent reasons for patients discontinuing OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, nonfunctional causes should be borne in mind. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy. If pathology has been excluded, time or a change to another formulation may solve the problem. Changing to an OC with a higher estrogen content, while potentially useful in minimizing menstrual irregularity, should be done only if necessary since this may increase the risk of thromboembolic disease. Women with a past history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may have a tendency to remain anovulatory or to become amenorrheic after discontinuation of OCs. Women with these preexisting problems should be advised of this possibility and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may also occur in women without previous irregularities. 11. *Ectopic Pregnancy.* Ectopic as well as intrauterine pregnancy may occur in contraceptive failures. However, in progestogen-only OC failures, the ratio of ectopic to intrauterine pregnancies is higher than in women who are not receiving OCs, since the drugs are more effective in preventing intrauterine than ectopic pregnancies. 12. *Breast-Feeding.* OCs given in the postpartum period may interfere with lactation. There may be a decrease in the quantity and quality of the breast milk. Furthermore, a small fraction of the hormonal agents in OCs has been identified in the milk of mothers receiving these drugs. The effects, if any, on the breast-fed child have not been determined. If feasible, the use of OCs should be deferred until the infant has been weaned. **PRECAUTIONS: General:** 1. A complete medical and family history should be taken prior to the initiation of OCs. The pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant laboratory tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical examination being performed. 2. Under the influence of estrogen-progestogen preparations preexisting uterine leiomyomata may increase in size. 3. Patients with a history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the medication and use an alternate method of contraception in an attempt to determine whether the symptom is drug related. 4. OCs may cause some degree of fluid retention. They should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma, or cardiac or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence of jaundice while receiving OC therapy. If jaundice develops in any patient receiving such drugs, the medication should be discontinued. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution in such patients. 7. OC users may have disturbances in normal tryptophan metabolism which may result in a relative pyridoxine deficiency. The clinical significance of this is yet to be determined. 8. Serum folate levels may be depressed by OC therapy. Since the pregnant woman is predisposed to the development of folate deficiency and the incidence of folate deficiency increases with increasing gestation, it is possible that if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and complications attributed to this deficiency. 9. The pathologist should be advised of OC therapy when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs: a. Increased sulfobromophthalein retention; b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability; c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered; d. Decreased pregnanediol excretion; e. Reduced response to metyrapone test. **INFORMATION FOR THE PATIENT:** See Patient Labeling. **DRUG INTERACTIONS:** Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, tetracycline, and ampicillin. **CARCINOGENESIS, PREGNANCY, NURSING MOTHERS:** See Contraindications and Warnings sections. **ADVERSE REACTIONS:** An increased risk of the following serious adverse reactions has been associated with the use of OCs (see Warnings): Thrombophlebitis; pulmonary embolism; coronary thrombosis; cerebral thrombosis; cerebral hemorrhage; hypertension; gallbladder disease; benign hepatomas; congenital anomalies. There is evidence of an association between the following conditions and the use of OCs, although additional confirmatory studies are needed: Mesenteric thrombosis; neuro-ocular lesions, eg, retinal thrombosis and optic neuritis. The following adverse reactions have been reported in patients receiving OCs and are believed to be drug related: Nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10 percent or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally: Gastrointestinal symptoms (such as abdominal cramps and bloating); breakthrough bleeding; spotting; change in menstrual flow; dysmenorrhea; amenorrhea during and after treatment; temporary infertility after discontinuance of treatment; edema; chloasma or melasma which may persist; breast changes: tenderness, enlargement and secretion; change in weight (increase or decrease); change in cervical erosion and cervical secretion; possible diminution in lactation when given immediately postpartum; cholestatic jaundice; migraine; increase in size of uterine leiomyomata; rash (allergic); mental depression; reduced tolerance to carbohydrates; vaginal candidiasis; change in corneal curvature (steepening); intolerance to contact lenses. The following adverse reactions have been reported in users of OCs, and the association has been neither confirmed nor refuted: Premenstrual-like syndrome; cataracts; changes in libido; chorea; changes in appetite; cystitis-like syndrome; headache; nervousness; dizziness; hirsutism; loss of scalp hair; erythema multiforme; erythema nodosum; hemorrhagic eruption; vaginitis; porphyria; hemolytic uremic syndrome. **ACUTE OVERDOSE:** Serious ill effects have not been reported following acute ingestion of large doses of OCs by young children. Overdosage may cause nausea, and withdrawal bleeding may occur in females. **HOW SUPPLIED:** Loestrin **21** 1/20 is available in dispensers each containing 21 tablets. Each tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Available in packages of five dispensers. Loestrin **Fe** 1/20 is available in dispensers each containing 21 white tablets and 7 brown tablets. Each white tablet contains 1 mg of norethindrone acetate and 20 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate. Available in packages of five dispensers. Loestrin **21** 1.5/30 is available in dispensers each containing 21 tablets. Each tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Available in packages of five dispensers. Loestrin **Fe** 1.5/30 is available in dispensers each containing 21 green tablets and 7 brown tablets. Each green tablet contains 1.5 mg of norethindrone acetate and 30 mcg of ethinyl estradiol. Each brown tablet contains 75 mg ferrous fumarate. Available in packages of five dispensers.

Caution – Federal law prohibits dispensing without prescription.

0913G153

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Division of Warner-Lambert Company
Morris Plains, New Jersey 07950

Family Planning
Perspectives

ISSN 0014-7354
Volume 20, Number 4, July/August 1988

Published bimonthly by
The Alan Guttmacher Institute
at 111 Fifth Avenue
New York, N.Y. 10003.

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Tel. 201-891-1055

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Second-class postage paid at New York, N.Y., and additional mailing offices. Postmaster: Send address changes to Family Planning Perspectives, 111 Fifth Avenue, New York, N.Y. 10003.

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Credits: Cover design by Ann Morris.

UPDATE

America's Unmet Health Goals

As 1990 approaches, it appears certain that many of the 13 "priority" reproduction-related public health goals set for that year by the U.S. Public Health Service in 1979 will not be met.[1] The overall infant mortality rate (10.6 deaths per 1,000 live births in 1985) is projected to fall to 9.1 per 1,000 in 1990, thus coming very close to the target of 9.0 per 1,000. However, by 1990, the black infant mortality rate is projected to exceed the target by 33 percent (15.9 compared with 12.0 per 1,000); the rate of low-birth-weight infants is projected to exceed the target by 35 percent (6.7 underweight births per 100 live births compared with 5.0 per 100); and the overall maternal mortality rate is expected to exceed the target by 40 percent (7.0 deaths per 100,000 live births compared with 5.0 per 100,000). Among blacks, the maternal mortality rate is projected to be more than 300 percent greater than the target (20.5 vs. 5.0 per 100,000). Indeed, the rate of maternal mortality among black women in 1990 is expected to be unchanged from 1985.

1. "Progress Toward Achieving the 1990 Objectives for Pregnancy and Infant Health," *Morbidity and Mortality Weekly Report*, **37**:405, 1988.

Do Condoms Measure Up?

The U.S. Food and Drug Administration (FDA) has been responsible since 1976 for assuring that condoms sold in the United States are safe and effective. Because of the great attention being focused on the condom as a result of the AIDS epidemic, the FDA began an expanded condom-testing program in 1987.[1] The test is a simple one, in which each condom is filled with 300 ml of water and checked for leaks. Any batch of condoms exceeding a failure rate of four per 1,000 is either recalled or barred from sale. By February 1988, 430 batches of condoms had been examined, in tests of more than 100,000 individual condoms. Of 165 batches made by U.S. manufacturers, 12 were tested, 12 percent failed; on the other hand, of 265 batches from foreign manufacturers, 21 percent had unacceptable rates of leakage.

1. "Condoms for Prevention of Sexually Transmitted Diseases," *Morbidity and Mortality Weekly Report*, **37**:133, 1988.

Reading Up on Condoms

Because condoms protect against both pregnancy and infection with sexually transmitted diseases, they have received growing attention in the 1980s. However, if they are to be effective, they must be used correctly. Applying a variety of tests of clarity and simplicity, investigators recently assessed the readability of the instructions included with 25 brands of condoms; 14 discrete sets of instructions were studied.[1] They concluded that the majority of condom brands sold in the United States come with instructions so complex that at least some college education is needed to understand them fully. They note that those whose comprehension would be most hindered are "persons with poor reading skills, persons who are using the condom incorrectly, and persons who have had no prior experience using them." The study also shows that, according to one measure of readability, the FDA's minimum acceptable package instructions for condom use are more complex and less readable than are six of the 14 sets of instructions analyzed.

1. G. A. Richwald et al., "Are Condom Instructions Readable? Results of a Readability Study," *Public Health Reports*, **103**:355, 1988.

Pregnant Residents

The first national study of women who either have not yet finished or have just completed their medical residency reveals that about one-third become pregnant during their residency—more than four in 10 married female residents and almost one in 10 unmarried female residents become pregnant. Residents in obstetrics-gynecology are more likely than those in psychiatry or surgery to become pregnant. Of the 363 pregnancies reported in the study, 28 percent were unplanned, and two in five unplanned pregnancies were the result of method failure. Surgeons are more likely to have an unplanned pregnancy than are other residents. Compared with residents who planned pregnancies, those with unplanned pregnancies are generally less certain about the appropriate timing of pregnancy and less convinced about their ability to perform their duties while arranging for child care. As the report concludes, "They appeared to resolve this conflict by not actively planning."

1. S. T. Phelan, "Pregnancy During Residency: I. The Decision 'To Be or Not to Be,'" *Obstetrics and Gynecology*, **72**:425, 1988.

Marketing the Condom

Only two years ago, provoked by concern over the possible heterosexual spread of AIDS, condom manufacturers and other concerned organizations launched national advertising campaigns that generally emphasized fear. In one well-known ad, a woman said "I'll do a lot for love, but I'm not ready to die for it." Now, according to one recent report, condom manufacturers are dropping the somber approach.[1] The reason? As one manufacturer, Ansell-Americas, discovered through focus group interviews, fear-based advertising has not worked. Condom sales have not matched expectations, and one reason may be that people were repelled by the advertisements. The feeling that a new approach is necessary has led some companies to devise humorous ads instead. For example, Ansell plans to show commercials on cable that feature such characters as Robin Hood and the Phantom of the Opera; their primary aim will be to lessen consumer embarrassment over buying condoms. The campaigns are not likely to be seen elsewhere, however, as

UPDATE

many commercial radio and television stations, magazines and newspapers still accept only condom advertisements that emphasize disease prevention.

1. R. Rothenberg, "Condom Makers Change Approach," *New York Times*, Aug. 8, 1988, p. D1.

Stopping IUD Infections

Many infections in IUD users begin at the time of insertion, when contaminants from the vagina and cervix are thrust into the uterus along with the device. The chance of infection may be heightened because the IUD is usually inserted during menstruation, when the uterine environment is particularly susceptible to infection. In a recent study, almost 300 women had their IUDs inserted around the time of ovulation rather than during menses and were given an antibiotic to take twice a day for five days after insertion.[1] By two years after insertion, only three women had developed pelvic inflammatory disease, compared with seven cases among an equal number of matched controls who were not using the IUD. The expulsion rate was lower than expected, too. The investigators conclude that this approach appears promising and urge a controlled, multicenter trial of the two methods of IUD insertion.

1. R. Jovanovic et al., "Preventing Infection Related to Insertion of an Intrauterine Device," *Journal of Reproductive Medicine*, **33**:347, 1988.

Latest on Dalkon Shield Suits

In the almost 15 years since the Dalkon Shield's removal from the U.S. market by its manufacturer, A.H. Robins, because of the pelvic infections and the deaths caused by the device, lawsuits have cost the company millions of dollars. Robins filed for bankruptcy in 1985, and in January 1988 agreed to a merger with American Home Products. However, the acquisition was not final until all creditors (including women claiming injury as a result of having used the Shield) had approved Robins's plan for reorganization under the bankruptcy law.[1] One part of this plan involved the setting aside of nearly $2.5 billion as a trust fund from which damages are to be paid to former Dalkon Shield users who have filed suit against the company. On July 18, Federal District Judge Robert R. Merhige, Jr., announced that all classes of creditors had agreed to the reorganization (including 94 percent of the 142,000 individual women with outstanding claims who had voted), and the plan was formally approved on July 26. Concerns remain, however, that the trust fund may ultimately prove too small to compensate all of those with claims; representatives of some claimants also object to the fact that company shareholders will be receiving $700 million from the sale of Robins before settlements have been reached with all of the victims. Although disbursement from the fund for the purpose of settling claims was scheduled to have begun at the end of August, and Robins deposited $100 million as a first installment to the trust fund at that time, appeals from dissenting claimants could further delay this process.

1. B. J. Feder, "Lawyers Say Robins Plan Has Approval of Creditors," *New York Times*, July 19, 1988, p. D1; "A. H. Robins Plan Near Approval," *Scrip*, No. 1329, July 27, 1988; and M. Freudenheim, "Dalkon Shield Trust Fund Organizes," *New York Times*, Aug. 8, 1988, p. D1.

Not Quite the IUD

A contraceptive device combining elements of the pill and the IUD is being developed by Finnish researchers, although it may not be available until well into the 1990s. Called an intracervical device (ICD), it releases a relatively constant amount of levonorgestrel from a Silastic reservoir, and prevents pregnancy without many of the usual pill-related side effects. The device is not quite an IUD, however, since it rests in the cervical canal, with only its horizontal arms located in the uterine opening into the canal. An advantage of the ICD is that its use is associated with significantly reduced bleeding and irritation compared with that of the IUD; a disadvantage is that it has an unacceptably high rate of expulsion. Further testing by its developers will determine whether design refinements can reduce the expulsion rate.

1. K. Ratsula, "Clinical Performance of a Levonorgestrel-Releasing Intracervical Device During the First Year of Use," *Contraception*, **36**:659, 1988; and "Intracervical Device May Be Effective Hormonal Contraceptive," *Contraceptive Technology Update*, **9**:81, 1988.

The Case of the Vanishing Implant

Clinical trials are set to begin later this year for tiny biodegradable pellets made of norethindrone.[1] Four pellets, each about the size of a grain of rice, are inserted just beneath the user's skin and slowly dissolve, releasing just enough norethindrone to prevent pregnancy. Fifteen percent of each pellet is made of cholesterol; the rest consists of 35 mg of norethindrone. The trials, which are being undertaken by Family Health International, will involve 1,200 women in the United States and four developing countries and are aimed at determining long-term rates of effectiveness and acceptability of the pellets, the length of time that norethindrone continues to circulate and the point at which another set of pellets should be inserted.

1. "FHI Tests NET Pellet Implants," *Network*, Vol. 9, No. 3, 1988, p. 3.

Future Climb in Hysterectomy

Both the number and rate of hysterectomies in the United States peaked in 1975—at 725,000 and 8.6 per 1,000 women 15 or older, respectively—fell somewhat after that and then leveled off during the early 1980s (at about 650,000 and a rate of seven per 1,000), according to estimates from the National Center for Health Statistics.[1] The annual number of hysterectomies has risen since 1985, and is projected to climb substantially over the next 15 years.[2] Even if the overall hysterectomy rate remains unchanged, the annual total of such operations would be about 800,000 by 1995 and 850,000 by 2005. The reason, according to the researchers, is that the baby-boom generation has begun to move into the age-groups at highest risk of hysterectomy.

1. R. Pokras and V. G. Hufnagel, "Hysterectomies in the United States," Vital and Health Statistics, Series 13, No. 92, 1988.
2. R. Pokras and V. G. Hufnagel, "Hysterectomy in the United States, 1965–84," *American Journal of Public Health*, **78**:852, 1988.

Birth Control Through the Ages

Visitors to Ontario, Canada, might consider taking a trip to the city's suburb of Don Mills, where a Museum on the History of Contraception is located at the corporate headquarters of Ortho Pharmaceutical Ltd.[1] Over 300 artifacts and displays illustrating the development of contraceptive methods include everything from an ancient Egyptian papyrus (which may represent the first prescription for a contraceptive method) to the most modern experimental devices and medications. There is no admission charge; visitors need only call the Public Affairs Department at Ortho for an appointment (416–449–9444).

1. Ortho Pharmaceuticals Ltd., *A Museum on the History of Contraception*, 1985.

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The Characteristics and Prior Contraceptive Use Of U.S. Abortion Patients

By Stanley K. Henshaw and Jane Silverman

Summary

Hispanic women are 60 percent more likely than non-Hispanics to have an unintended pregnancy that they terminate by abortion, but they are less likely than nonwhites to do so. Women who profess no religion have a higher abortion rate than do women who report some religious affiliation; among the latter, Catholics are about as likely to obtain an abortion as are all women nationally, while Protestants and Jews are less likely to do so. One in six abortion patients in 1987 described themselves as born-again or Evangelical Christians; such women are half as likely as other American women to obtain abortions. Unmarried cohabiting women are nine times as likely as married women living with their husbands to have an abortion, and separated women are also at high risk. Other characteristics associated with an above-average likelihood of abortion are current school enrollment, current employment, low income, Medicaid coverage, intention to have no more children and residence in a metropolitan county.

Half of all abortion patients in 1987 were practicing contraception during the month in which they conceived, and a substantial proportion of those who were not doing so had stopped using a method only a few months before becoming pregnant. The majority of abortion patients who had stopped using a method prior to becoming pregnant said they had most recently used the pill. Nonuse of a method of birth control among abortion patients is greatest for those who are young, poor, black, Hispanic or less educated.

Introduction

Until now, the only national information on the characteristics of women obtaining abortions have been derived from data collected by about 40 state health departments* and the District of Columbia. These data have been mostly limited to a few basic demographic and procedure-related variables. The U.S. Centers for Disease Control (CDC) have combined the state-by-state data and have periodically published abortion surveillance reports.[1] The Alan Guttmacher Institute (AGI) has used these data, along with incidence data from the AGI's own periodic abortion surveys, to create annual national estimates of the number and percentage distributions of abortions performed and of abortion rates and ratios, all according to the available characteristics.[2] In 1983, the estimates were based on data for 42–66 percent of all abortions, depending on the characteristic being examined. The remaining abortions were not reported to state health departments or occurred in states that do not collect this information. It was necessary to assume when formulating these estimates that the characteristics of women who obtain unreported abortions are similar to those of women whose abortions are reported.

This article presents new national data on the characteristics of women having abortions, collected in an AGI survey of 9,480 women who obtained abortions during 1987 at 103 clinics, hospitals and doctors' offices in all parts of the country. The purpose of the survey was to provide data needed for an ongoing AGI project to correct contraceptive failure rates calculated from the National Survey of Family Growth.[3] Although these failure rates represent the most reliable data available, they are somewhat underestimated because the survey recorded only 48 percent of the abortions that would have been expected if the respondents were typical of all U.S. women.

Methodology

To survey a nationally representative sample of U.S. abortion patients, we drew a probability sample of abortion providers from files maintained by the AGI. The AGI universe of abortion providers had last been updated in 1986 for a survey of abortion services provided in 1984 and 1985. The sample was stratified by the providers' 1985 caseload, with numbers rounded to the nearest 10 (i.e., 30–390, 400–990, 1,000–4,990 and 5,000 or more), by the type of provider (hospital vs. nonhospital) and by the region of the country the provider was in (the four census regions). Providers that reported having performed fewer than 30 abortions annually over the period 1984–1985 were omitted for practical reasons; such facilities accounted for only 0.4 percent of all reported abortions in 1985.[4] The providers were asked to distribute questionnaires to all abortion patients during a specified period of time (ranging from one week to 12 weeks, depending on the provider's caseload). The survey instrument was self-administered and was made available in both English and Spanish. Each patient was asked about her age, race, ethnicity (Hispanic or not), Medicaid

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The authors are grateful for the assistance of many staff members of the AGI research department, especially Christine Lefkarites and Susan Eisman, who were responsible for data collection and processing, and Jacqueline Darroch Forrest, who provided guidance and suggestions at all stages of the project. They also wish to thank James Lepkowski of the Survey Research Center, University of Michigan, for statistical advice on weighting and imputation. Charles F. Westoff, Jane Menken, James Trussell, Noreen Goldman and Barbara Vaughan, all of Princeton University, and Charles R. Hammerslough of the University of Michigan provided assistance in designing the project from which the data were derived. This research is based on data collected as part of a larger project funded by the National Institute of Child Health and Human Development. The opinions expressed herein are those of the authors, not of DHHS or any other U.S. government agency.

*The number of states reporting varies by year and by characteristic status, household income, date of last menstrual period, marital status and living arrangements, number of prior births and prior abortions, level of educational attainment, school enrollment status, employment status, religion, place of residence, recent pattern and duration of contraceptive use and intention to have children in the future.

The original sampling plan called for 94 abortion facilities to provide data for at least 8,000 women. However, some no longer provided abortions, refused to cooperate with the survey or were willing but unable to administer it; substitutions were required for 35 of the 71 nonhospital facilities and for 13 of the 23 hospitals originally asked to participate. Wherever possible, these were replaced with facilities of the same type, size and region. In some cases, though, this was impossible, because no similar facility existed or because we had come to the end of the survey period. Data were ultimately obtained from 88 of the abortion providers sampled in this way—21 hospitals and 67 clinics.

Although we came close to reaching the planned number of participating facilities, it became apparent that we would fall short of the 8,000 usable responses required by the research design. (One reason for the lower-than-expected response appears to be that the caseloads of many facilities fell after 1985, and the number of patients interviewed was fewer than anticipated.) Thus, a supplementary sample of 18 nonhospital facilities was drawn near the end of the survey period; three refused to participate. In the end, 103 facilities participated in the study—21 hospital-based providers and 82 nonhospital facilities.

A total of 11,313 women were abortion patients at cooperating facilities during the study period. The women to whom the questionnaire was administered were informed that participation in the survey was voluntary. A total of 809 patients refused or answered too few questions for their questionnaires to be usable. Facility staff were asked to supply information on four core demographic items—age, race, ethnicity (Hispanic or not) and Medicaid status—for the patients who refused to participate. In addition, no information could be collected for 1,024 patients; most of these omissions resulted from the providers' failure to administer the questionnaire to all patients, although a few represented individual refusals for whom no demographic data were provided. Overall, data on at least the four basic characteristics were available for 10,289 women, and at least some additional information was collected from 9,480 abortion patients.

Table 1. Percentage distribution of women having abortions in 1983 and 1987, and distribution projected for 1987 from 1983 data, by selected characteristics

Characteristic	1983	1987 survey	1987 (projected)*
Age			
<15	1.0	0.9	1.0
15–17	10.6	10.8	10.8
18–19	15.5	13.8	14.1
20–24	34.8	33.1	32.5
25–29	20.8	22.3	22.0
30–34	10.9	11.7	12.2
35–39	5.0	5.7	5.9
≥40	1.4	1.7	1.6
Marital status			
Married	18.7	18.5	18.4
Unmarried†	81.3	81.5	81.6
Race‡			
White	68.8	68.6	67.3
Nonwhite	31.2	31.4	32.7
No. of live births			
0	56.5	52.4	55.7
1	20.9	22.1	21.5
2	14.4	15.6	15.2
3	5.3	6.2	5.2
≥4	2.9	3.7	2.3
No. of prior induced abortions			
0	61.2	57.1	u
1	25.8	26.9	u
2	8.8	10.7	u
≥3	4.2	5.3	u
Total	100.0	100.0	100.0

*Projections assume that abortion rates in various subgroups were unchanged between 1983 and 1987.

†Includes widows and separated, divorced and never-married women.

‡Here and in Table 2, Hispanics are included among both whites and nonwhites, according to their own classification.

Note: u=unavailable.

Source: For 1983 data, see reference 2. The 1987 projections are based on U.S. Bureau of the Census, "United States Population Estimates, by Age, Sex, and Race: 1980 to 1987," *Current Population Reports*, Series P–25, No. 1022, 1988, Table 2; ——, "Marital Status and Living Arrangements: March 1987," *Current Population Reports*, Series P–20, No. 423, 1988, Table 1; and ——, "Fertility of American Women: June 1986," *Current Population Reports*, Series P–20, No. 421, 1987, Table 1.

In order to correct for any bias produced either by deviation from the original sampling plan or by nonresponse, a three-step weighting process was followed. First, weights were constructed to correct for departures from the number of facilities to be sampled in each grouping by caseload, provider type and region. Facility-level weights were then used to adjust for the deviation between the number of questionnaires returned and the number of abortions provided during the weeks the survey was administered. Finally, interview-level nonresponse weights were developed to adjust for individual refusal to participate in the survey; the fact that facilities provided data on four basic characteristics was taken into account. The weighting resulted in a four percent increase in the variance of means and proportions estimated from the sample, assuming that the variables being estimated were not correlated with the weights.

The proportion of patients who failed to respond to individual items on the questionnaire ranged from 1.2 percent to 18.8 percent, the latter being the figure for the question on income. Instead of assuming that the nonrespondents were similar to those who had answered a question, we replaced missing information with data imputed on the basis of the responses of other women with similar characteristics. The imputation was accomplished by a "hot-deck" procedure.*

Results

Where possible, as a check on the representativeness of the weighted sample, results have been compared with national abortion data from 1983 and with 1983 data projected for 1987 (see Table 1). These projections take into account changes between 1983 and 1987 in the distribution of age, marital status, race and number of live births in the female population of the United States, and are based on the assumption that there was no change in the abortion rates of the subgroups. No projections could be made for prior induced abortions because there are no available current population data on the number of abortions women have had.

As can be seen in Table 1, the percentage distributions by age-group and marital status in the 1987 survey proved to be very close to those projected for 1987. For age, the greatest differences between the survey result and the expected value occurred among women 20–24 and 30–34 years old (0.6 and 0.5 percentage points, respectively). Differences of this magnitude could have occurred as a result of sampling error; they also could have arisen because of changes in the pattern of abortion utilization between 1983 and 1987, bias in the survey sample, measurement error in the survey, or errors in the 1983 national esti-

(Continued on page 162)

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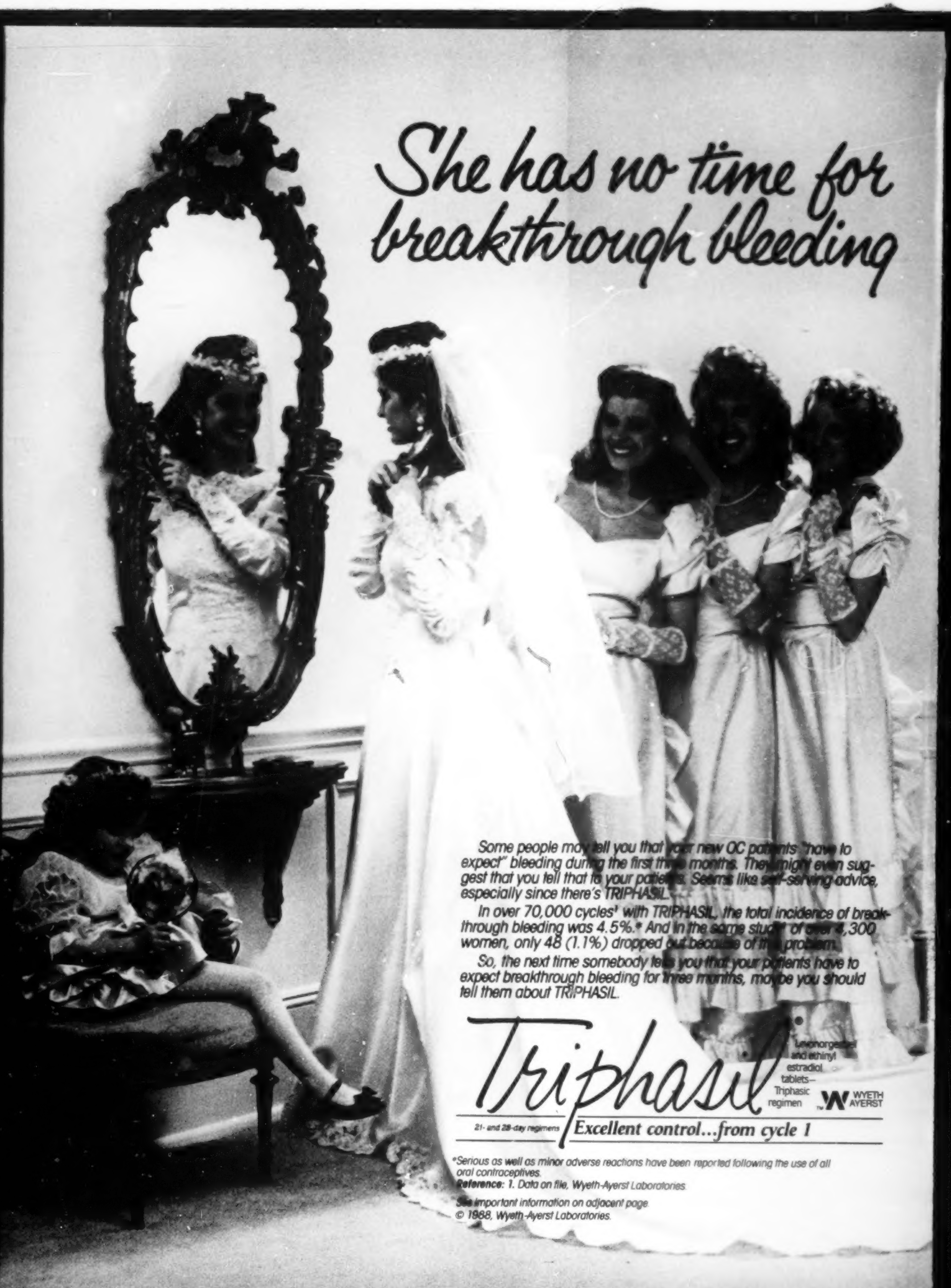
*For each item requiring imputation, correlational and cross-tabular analyses were used to identify the variables most strongly associated with it. Respondents were sorted according to these "criterion" variables in the order of the strength of the item's association with the imputed variable, so that similar cases were adjacent to one another in the file. A missing value was then replaced by the value of the preceding case in the file. In general, no case was allowed to "donate" its value more than four times.



She has no time for breakthrough bleeding

Some people may tell you that your new OC patients "have to expect" bleeding during the first three months. They might even suggest that you tell that to your patients. Seems like self-serving advice, especially since there's TRIPHASIL.

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***Reference:** 1. Data on file, Wyeth-Ayerst Laboratories.*

See important information on adjacent page.

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IN BRIEF:

TRIPHASIL®—6 brown tablets containing 0.050 mg levonorgestrel with 0.030 mg ethinyl estradiol; 5 white tablets containing 0.075 mg levonorgestrel with 0.040 mg ethinyl estradiol; 10 light-yellow tablets containing 0.125 mg levonorgestrel with 0.030 mg ethinyl estradiol (7 light-green tablets containing inert ingredients are included in the 28-day regimen)—Triphasic regimen.

Indications and Usage—TRIPHASIL® is indicated for the prevention of pregnancy in women who elect to use oral contraceptives (OC's) as a method of contraception.

Contraindications—OC's should not be used in women with any of the following conditions: 1. Thrombophlebitis or thromboembolic disorders. 2. A past history of deep-vein thrombophlebitis or thromboembolic disorders. 3. Cerebral-vascular or coronary-artery disease. 4. Known or suspected carcinoma of the breast. 5. Known or suspected estrogen-dependent neoplasia. 6. Undiagnosed abnormal genital bleeding. 7. Known or suspected pregnancy (see Warning No. 5). 8. Benign or malignant liver tumor which developed during use of OC's or other estrogen-containing products.

Warnings

> **Cigarette smoking increases the risk of serious cardiovascular side effects from oral contraceptive use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use oral contraceptives should be strongly advised not to smoke.**
>
> The use of oral contraceptives is associated with increased risk of several serious conditions, including thromboembolism, stroke, myocardial infarction, hepatic adenoma, gallbladder disease, hypertension. Practitioners prescribing oral contraceptives should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems*—An increased risk of thromboembolic and thrombotic disease associated with use of OC's is well established. Three principal studies in Great Britain and 3 in the U.S. have demonstrated increased risk of fatal and nonfatal venous thromboembolism and stroke, both hemorrhagic and thrombotic. These studies estimate that users of OC's are 4 to 11 times more likely than nonusers to develop these diseases without evident cause.

CEREBROVASCULAR DISORDERS—In a collaborative American study of cerebrovascular disorders in women with and without predisposing causes, it was estimated that the risk of hemorrhagic stroke was 2.0 times greater in users than nonusers and the risk of thrombotic stroke was 4 to 9.5 times greater in users than in nonusers.

MYOCARDIAL INFARCTION (MI)—An increased risk of MI associated with the use of OC's has been reported, confirming a previously suspected association. These studies, conducted in the UK, found, as expected, that the greater the number of underlying risk factors for coronary-artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of pre-eclamptic toxemia) the higher the risk of developing MI, regardless of whether the patient was an OC user or not. OC's, however, were found to be a clear additional risk factor. In terms of relative risk, it has been estimated that OC users who do not smoke (smoking is considered a major predisposing condition to MI) are about twice as likely to have a fatal MI as nonusers who do not smoke. OC users who are also smokers have about a 5-fold increased risk of fatal MI compared to users who do not smoke, but about a 10- to 12-fold increased risk compared to nonusers who do not smoke. Furthermore, amount of smoking is also an important factor. In determining importance of these relative risks, however, baseline rates for various age groups must be given serious consideration. Importance of other predisposing conditions mentioned above in determining relative and absolute risks has not as yet been quantified; quite likely the same synergistic action exists, but perhaps to a lesser extent.

RISK OF DOSE—In an analysis of data derived from several national adverse-reaction reporting systems, British investigators concluded that risk of thromboembolism, including coronary thrombosis, is directly related to dose of estrogen in OC's. Preparations containing 100 mcg or more of estrogen were associated with higher risk of thromboembolism than those containing 50-80 mcg. Their analysis did suggest, however, that quantity of estrogen may not be the sole factor involved. This finding has been confirmed in the U.S.

ESTIMATE OF EXCESS MORTALITY FROM CIRCULATORY DISEASES—A large prospective study carried out in the UK estimated the mortality rate per 100,000 women per year from diseases of the circulatory system for users and nonusers of OC's according to age, smoking habits, and duration of use. Overall excess death rate annually from circulatory diseases for OC users was estimated to be 20 per 100,000 (ages 15-34—5/100,000; ages 35-44—33/100,000; ages 45-49—140/100,000), risk being concentrated in older women, in those with long duration of use and in cigarette smokers. It was not possible, however, to examine interrelationships of age, smoking, and duration of use, nor to compare effects of continuous vs. intermittent use. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all these deaths occurred in women 35 or older. Until larger numbers of women under 35 with continuous use for 5 or more years are available, it is not possible to assess magnitude of relative risk for this younger group. Available data from a variety of sources have been analyzed to estimate risk of death associated with various methods of contraception. Estimates of risk of death for each method include combined risk of contraceptive method (e.g., thromboembolic and thrombotic disease in the case of OC's) plus risk attributable to pregnancy or abortion in event of method failure. This latter risk varies with effectiveness of method. The study concluded that mortality associated with all methods of birth control is low and below that associated with childbirth, with the exception of OC's in women over 40 who smoke. Lowest mortality is associated with condom or diaphragm backed up by early abortion. Risk of thromboembolic and thrombotic disease associated with OC's increases with age after about 30 and, for MI, is further increased by hypertension, hypercholesterolemia, obesity, diabetes, or history of pre-eclamptic toxemia, and especially cigarette smoking. Physician and patient should be alert to earliest manifestations of thromboembolic and thrombotic disorders (e.g., thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). Should any of these occur or be suspected, the drug should be discontinued immediately. A 4- to 6-fold increased risk of postsurgery thromboembolic complications has been reported in OC users. If feasible, OC's should be discontinued at least 4 weeks before surgery of a type associated with increased risk of thromboembolism or prolonged immobilization.

PERSISTENCE OF RISK OF VASCULAR DISORDERS—Findings from one study in Britain involving cerebrovascular disease and another in the U.S. concerning MI suggest an increased risk of these conditions in users of OC's persists after discontinuation of the OC's. In the British study, risk of cerebrovascular disease remained elevated in former OC users for at least 6 years after discontinuation. In the U.S. study, increased risk of MI persisted for at least 9 years in women 40 to 49 years old who had used OC's for 5 or more years. Findings in both studies require confirmation since they are inconsistent with other published information.

2. *Ocular Lesions*—There have been reports of neuro-ocular lesions such as optic neuritis or retinal thrombosis associated with use of OC's. Discontinue OC's if there is unexplained, sudden or gradual, partial or complete loss of vision; onset of proptosis or diplopia; papilledema; or retinal-vascular lesions, and institute appropriate diagnostic and therapeutic measures.

3. *Carcinoma*—Long-term continuous administration of either natural or synthetic estrogen in certain animal species increases frequency of carcinoma of the breast, cervix, vagina, and liver. Certain synthetic progestogens, none currently contained in OC's, have been noted to increase incidence of mammary nodules, benign and malignant, in dogs. In humans, 3 case-control studies have reported an increased risk of endometrial carcinoma associated with prolonged use of exogenous estrogen in postmenopausal women. One publication reported on the first 21 cases submitted by physicians to a registry of cases of adenocarcinoma of the endometrium in women under 40 on OC's. Of cases found in women without predisposing risk factors (e.g., irregular bleeding at the time OC's were first given, polycystic ovaries), nearly all occurred in women who had used a sequential OC. These are no longer marketed. No evidence has been reported suggesting increased risk of endometrial cancer in users of conventional combination or progestogen-only OC's. Several studies have found no increase in breast cancer in women taking OC's or estrogens. One study, however, while also noting no overall increased risk of breast cancer in women on OC's, found an excess risk in subgroups of OC users with documented benign breast disease. Reduced occurrence of benign breast tumors in users of OC's has been well documented. In summary, there is at present no confirmed evidence from human studies of increased risk of cancer associated with OC's. Close clinical surveillance of all women on OC's is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, appropriate diagnostic measures should be taken to rule out malignancy. Women with a strong family history of breast cancer or with breast nodules, fibrocystic disease, or abnormal mammograms should be monitored with particular care if they elect to use OC's.

4. *Hepatic Tumors*—Benign hepatic adenomas have been found to be associated with use of OC's. One study showed that OC's with high hormonal potency were associated with higher risk than lower potency OC's. Although benign, hepatic adenomas may rupture and may cause death through intra-abdominal hemorrhage. This has been reported in short-term as well as long-term users. Two studies relate risk with duration of use of OC's, the risk being much greater after 4 or more years' use. While hepatic adenoma is rare, it should be considered in women presenting abdominal pain and tenderness, abdominal mass or shock. A few cases of hepatocellular carcinoma have been reported in women on OC's. Relationship of these drugs to this type of malignancy is not known.

5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring*—Use of female sex hormones—both estrogenic and progestational agents—during early pregnancy may seriously damage the offspring. It has been shown that females exposed in utero to diethylstilbestrol, a nonsteroidal estrogen, have increased risk of developing in later life a form of vaginal or cervical cancer ordinarily extremely rare. This risk has been estimated to be of the order of 1 in 1,000 exposures or less. Although there is no evidence now that OC's further enhance risk of developing this type of malignancy, such patients should be monitored with particular care if they elect to use OC's. Furthermore, 30 to 90% of such exposed women have been found to have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether this condition is a precursor of vaginal malignancy. Male children so exposed may develop abnormalities of the urogenital tract. Although similar data are not available with use of other estrogens, it cannot be presumed they would not induce similar changes. An increased risk of congenital anomalies, including heart defects and limb defects, has been reported with use of sex hormones, including OC's, in pregnancy. One case-control study estimated a 4.7-fold increase in risk of limb-reduction defects in infants exposed in utero to sex hormones (OC's, hormonal withdrawal tests for pregnancy, or attempted treatment for threatened abortion). Some exposures involved only a few days. Data suggest that risk of limb-reduction defects in exposed fetuses is somewhat less than 1 in 1,000 live births. In the past, female sex hormones have been used during pregnancy in an attempt to treat threatened or habitual abortion. There is considerable evidence that estrogens are ineffective for these indications, and there is no evidence from well-controlled studies that progestogens are effective. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OC's. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OC's is unknown. It is recommended that, for any patient who has missed 2 consecutive periods, pregnancy should be ruled out before continuing OC's. If the patient has not adhered to the prescribed schedule, the possibility of pregnancy should be considered at time of first missed period, and further use of OC's should be withheld until pregnancy has been ruled out. If pregnancy is confirmed, the patient should be apprised of the potential risks to the fetus, and advisability of continuation of the pregnancy should be discussed. It is also recommended that women who discontinue OC's with intent of becoming pregnant use an alternate form of contraception for a period of time before attempting to conceive. Many clinicians recommend 3 months, although no precise information is available on which to base this. The administration of progestogen-estrogen combinations to induce withdrawal bleeding should not be used as a test of pregnancy.

6. *Gallbladder Disease*—Studies report increased risk of surgically confirmed gallbladder disease in users of OC's and estrogens. In one study, increased risk appeared after 2 years' use and doubled after 4 or 5 years' use. In one of the other studies, increased risk was apparent between 6 and 12 months' use.

7. *Carbohydrate and Lipid Metabolic Effects*—Decrease in glucose tolerance has been observed in a significant percentage of patients on OC's. For this reason, prediabetic and diabetic patients should be carefully observed while on OC's. Increases in triglycerides and total phospholipids have been observed in patients on OC's. Three studies were performed with Triphasil and no significant alterations in lipid metabolism were noted except for a slight increase in triglyceride levels in 1 study. Clinical significance of these findings remains to be defined.

8. *Elevated Blood Pressure*—Increase in blood pressure has been reported in patients on OC's. In some women, hypertension may occur within a few months of beginning OC's. In the 1st year of use, prevalence of women with hypertension is low in users and may be no higher than that of a comparable group of nonusers. Prevalence in users increases, however, with longer exposure, and in the 5th year of use is 2½ to 3 times the reported prevalence in the 1st year. Age is also strongly correlated with development of hypertension in OC users. Women who previously have had hypertension during pregnancy may be more likely to develop elevation of blood pressure on OC's. Hypertension that develops as a result of taking OC's usually returns to normal after discontinuing the drug.

9. *Headache*—Onset or exacerbation of migraine or development of headache of a new pattern which is recurrent, persistent, or severe, requires discontinuation of OC's and evaluation of the cause.

10. *Bleeding Irregularities*—Breakthrough bleeding, spotting, and amenorrhea are frequent reasons for patients discontinuing OC's. In breakthrough bleeding, as in all cases of irregular vaginal bleeding, nonfunctional causes should be borne in mind. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, adequate diagnostic measures are indicated to rule out pregnancy or malignancy. If pathology has been excluded, time or change to another OC may solve the problem. Changing to an OC with a higher estrogen content, while potentially useful in minimizing menstrual irregularity, should be done only if necessary, since this may increase risk of thromboembolic disease. Women with past history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may have a tendency to remain anovulatory or to become amenorrheic after discontinuing OC's. Women with these preexisting problems should be advised of this possibility and encouraged to use other methods. Post-use anovulation, possibly prolonged, may also occur in women without previous irregularities.

11. *Ectopic Pregnancy*—Ectopic as well as intrauterine pregnancy may occur in contraceptive failures.

12. *Breast-feeding*—OC's given in the postpartum period may interfere with lactation and decrease quantity and quality of breast milk. Furthermore, a small fraction of the hormones in OC's has been identified in the milk of mothers on OC's; effects, if any, on the breast-fed child have not been determined. If feasible, defer OC's until infant has been weaned.

Precautions—GENERAL—1. A complete medical and family history should be taken prior to initiation of OC's. Pretreatment and periodic physical examinations should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Pap smear and relevant laboratory tests. As a general rule OC's should not be prescribed for longer than 1 year without another physical examination and Pap smear.

2. Under influence of estrogen-progestogen preparations, preexisting uterine leiomyomata may increase in size.

3. Patients with history of psychic depression should be carefully observed and the drug discontinued if depression recurs to a serious degree. Patients becoming significantly depressed while on OC's should stop OC's and use an alternate method to try to determine whether the symptom is drug-related.

4. OC's may cause some degree of fluid retention. They should be prescribed with caution, and only with careful monitoring, in patients with conditions which might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma, or cardiac or renal insufficiency.

5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence while on OC's. If jaundice develops, OC's should be discontinued.

6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution.

7. OC users may have disturbances in normal tryptophan metabolism which may result in a relative pyridoxine deficiency. Clinical significance is undetermined.

8. Serum folate levels may be depressed by OC's. Since the pregnant woman is predisposed to development of folate deficiency and incidence of folate deficiency increases with increasing gestation, it is possible that if a woman becomes pregnant shortly after stopping OC's, she may have a greater chance of developing folate deficiency and complications attributed to this deficiency.

9. The pathologist should be advised of OC therapy when relevant specimens are submitted.

10. Certain endocrine- and liver-function tests and blood components may be affected by estrogen-containing OC's:

a. Increased sulfobromophthalein retention.

b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability.

c. Increased thyroid-binding globulin (TBG) leading to increased circulating total-thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered.

d. Decreased pregnanediol excretion.

e. Reduced response to metyrapone test.

Information for the Patient—See Patient Package Labeling.

Drug Interactions—Reduced efficacy and increased incidence of breakthrough bleeding have been associated with concomitant use of rifampin. A similar association has been suggested with barbiturates, phenylbutazone, phenytoin sodium, ampicillin and tetracycline.

Carcinogenesis—See Warnings section for information on carcinogenesis.

Pregnancy—Category X. See Contraindications, Warnings.

Nursing Mothers—See Warnings.

Adverse Reactions—An increased risk of these serious adverse reactions has been associated with use of OC's (see Warnings): thrombophlebitis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, cerebral hemorrhage, hypertension, gallbladder disease, benign hepatomas, congenital anomalies. There is evidence of an association between the following conditions and use of OC's although additional confirmatory studies are needed: mesenteric thrombosis, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis.

The following adverse reactions have been reported in patients on OC's and are believed to be drug-related. Nausea and/or vomiting, usually the most common adverse reactions, occur in approximately 10 percent or less of patients during the first cycle. Other reactions, as a general rule, are seen much less frequently or only occasionally. Gastrointestinal symptoms (such as abdominal cramps and bloating); breakthrough bleeding, spotting, change in menstrual flow; dysmenorrhea, amenorrhea during and after treatment, temporary infertility after discontinuance of treatment; edema; chloasma or melasma which may persist; breast changes: tenderness, enlargement, and secretion; change in weight (increase or decrease); change in cervical erosion and cervical secretion; possible diminution in lactation when given immediately postpartum; cholestatic jaundice; migraine; increase in size of uterine leiomyomata; rash (allergic); mental depression; reduced tolerance to carbohydrates; vaginal candidiasis; change in corneal curvature (steepening); intolerance to contact lenses. The following adverse reactions have been reported in users of OC's, and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of scalp hair, erythema multiforme, erythema nodosum, hemorrhagic eruption, vaginitis, porphyria, hemolytic uremic syndrome.

Acute Overdose—Serious ill effects have not been reported following acute ingestion of large doses of OC's by young children. Overdosage may cause nausea, and withdrawal bleeding may occur in females.

Dosage and Administration—For maximum contraceptive effectiveness, Triphasil must be taken exactly as directed and at intervals not over 24 hours. (If Triphasil is first taken later than first day of first menstrual cycle of medication or postpartum, contraceptive reliance should not be placed on it until after the first 7 consecutive days of use. Possibility of ovulation and conception prior to initiation of medication should be considered.)

Any time patient misses 1 or 2 brown, white or light-yellow tablets, she should also use another contraceptive method until she has taken a tablet daily for 7 consecutive days.

For full details on dosage and administration see prescribing information in package insert.

Because there's no time for breakthrough bleeding

Triphasil®

WYETH AYERST™

3421-3 12/10/85

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Table 2. Percentage distribution of women having abortions in 1987 and of all women aged 15–44, index of abortion incidence and age-standardized index, all by selected characteristics

Characteristic	Abortion patients	All women	Index	Index (adj.*)
Age				
<15	0.9	u	na	na
15–17	10.8	9.4	1.15	na
18–19	13.8	6.2	2.23	na
20–24	33.1	17.0	1.95	na
25–29	22.3	18.9	1.18	na
30–34	11.7	18.4	0.64	na
35–39	5.7	16.3	0.35	na
≥40	1.7	13.7†	0.12	na
Ethnicity				
Hispanic	12.8	8.4	1.52	1.44
Non-Hisp.	87.2	91.6	0.95	0.96
Race				
White	68.6	83.3	0.82	0.83
Nonwhite	31.4	16.7	1.88	1.80
Religion				
Protestant	41.9	57.9	0.72	0.74
Catholic	31.5	32.1	0.98	0.95
Jewish	1.4	2.5	0.56	0.69
Other	2.9	2.0	1.45	2.04
None	22.2	5.5	4.04	3.68
Born again/ Evangelical‡	15.8	32.0	0.49	0.51
Not born again	84.2	68.0	1.24	1.23
School enrollment				
Enrolled	31.1	20.5	1.52	1.51§
Not enrolled	68.9	79.5	0.87	0.94§
Total	100.0	100.0	1.00	1.00
Marital status				
Married	18.5	52.1	0.36	0.52
Separated	6.4	3.3	1.94	2.62
Divorced	11.2	8.2	1.37	2.05
Widow	0.6	0.7	0.81	2.01**
Never-married	63.3	35.7	1.77	1.35
Living arrangements				
Cohabiting††	17.4	3.4	5.12	4.65
Not cohabiting	82.6	96.6	0.86	0.86
Employment status				
Employed	68.1	64.2	1.06	1.09§
Not employed	31.9	35.8	0.89	0.81§
Family income				
<$11,000	33.1	14.9	2.22	1.99
$11,000–$24,999	33.8	29.2	1.16	1.10
≥$25,000	33.1	55.9	0.59	0.62
Medicaid status				
Covered	23.8	9.0	2.64	2.44
Not covered	76.2	91.0	0.84	0.85
Childbearing intention				
More children	69.7	61.6	1.13	0.90
No more	30.3	38.4	0.79	1.32
Residence status				
Metro	85.7	77.1	1.11	1.11
Nonmetro	14.3	22.9	0.62	0.62
Total	100.0	100.0	1.00	1.00

*Age-standardized. †Women 40–44 only. ‡Based on women 18–44.

§Standardized on women 25–44. ††Among women not currently married.

**Standardized on women 20–44. Notes: na = not applicable; u = unavailable.

Sources: **Hispanic origin**—U.S. Bureau of the Census, "The Hispanic Population in the United States: March 1986 and 1987 (Advance Report)," *Current Population Reports*, Series P–20, No. 416, 1987, Table 3; ——, "The Hispanic Population in the United States: March 1985," *Current Population Reports*, Series P–20, No. 422, 1988, Table 6. **Race**—U.S. Bureau of the Census, "United States Population Estimates, by Age, Sex, and Race: 1980 to 1987," *Current Population Reports*, Series P–25, No. 1022, 1988, Table 2. **Religion**—Special tabulation of the National Survey of Family Growth (NSFG), Cycle III, 1988. **Born again**—Special tabulations (six Gallup Polls), The Roper Center for Public Opinion Research, Storrs, Conn., 1988. **Marital status and cohabitation**—U.S. Bureau of the Census, "Marital Status and Living Arrangements: March 1987," *Current Population Reports*, Series P–20, No. 423, 1988, Tables 1 and 7. **School enrollment**—R. Bruno, unpublished data, Current Population Survey, Oct. 1986, U.S. Bureau of the Census, May 31, 1988. **Employment status**—U.S. Department of Labor, Bureau of Labor Statistics, "Employment and Unemployment: A Report on 1987," Jan. 1988, Table 3. **Family income**—U.S. Bureau of the Census, unpublished data from Current Population Survey, Table PF1; ——, "Money Income of Households, Families and Persons in the United States: 1985," *Current Population Reports*, Series P–60, No. 156, 1987, Table 18. **Medicaid coverage**—AGI, *The Financing of Maternity Care in the United States*, New York, 1987, Table 105. **Future childbearing intentions**—Special tabulation, NSFG, Cycle III, 1988. **Metropolitan area**—Distributions of the female population by age according to metro status, U.S. Bureau of the Census, 1980 Census, General Population Characteristics PC80–1–B1, U.S. summary, Table 43: updated to 1986 using U.S. Bureau of the Census, *Statistical Abstract of the United States 1988*, U.S. Government Printing Office, Washington, D.C., 1988, Table 30.

(Continued from page 159)

mates caused by overall differences between the women whose abortions were reported to state statistical agencies and those who obtained abortions in states that did not require abortions to be reported or in facilities that did not report for some other reason. The closeness of the results for age and marital status suggests that the sample accurately represents the universe of women obtaining abortions, and that there has been relatively little change in the pattern of utilization since 1983, at least with respect to these two variables. The possibility remains, however, that the similarity of the observed and expected distributions is a chance result of compensating errors and trends. With regard to race, the difference between the survey results and the projected national proportions was slightly larger (1.3 percentage points for each category). This differential could have been caused by variations in the way in which Hispanics are classified.*

The proportion of women with no children who obtained abortions was 3.3 percentage points lower in 1987 than projected. The proportion declined between 1979 and 1983 and could well have fallen further. The percentage of abortion patients with no prior abortions has been declining along with the proportion of women in the population who have never had an abortion.[5] In conclusion, comparisons with projections from established national data suggest that the sample studied here accurately represents all women who obtained abortions in 1987 in the United States.

Table 2 shows the percentage distribution of women who had abortions, according to the characteristics about which the survey provided information.† The abortion rate for each subgroup (the number of abortions per 1,000 women in the subgroup) could not be calculated because the total number of abortions performed in 1987 is not yet known. Because the survey did not cover facilities that began to provide abortions after 1985, we could not make the necessary estimate of the universe of abortion providers for 1987.

However, although we cannot present actual rates, we can create an abortion index that allows subgroups to be compared in the same way they could be if there were rates for the individual subgroups. The index is equivalent to the ratio of an abortion rate for each subgroup to the overall abortion rate, and is calculated by dividing the proportion of abortion patients in a subgroup by the proportion of U.S. women aged 15–44 in that particular subgroup.‡ If the subgroup's abortion rate were the same as the rate for all women 15–44, the index would be 1.0; index values under 1.0 indicate rates below the national average, and values over 1.0 represent above-average rates. If one wishes to assume that the abortion rate in

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*In the present study, Hispanics who reported their race as "other" were reclassified as black or white by imputation.

†Breakdowns by educational attainment are not shown because the wording of the question may have produced inaccurate results.

‡That the ratio of these proportions is the same as the ratio of the subgroup's abortion rate to the overall abortion rate may be seen from the following:

$$\text{Subgroup rate/overall rate} = (A_i/W_i) / (A_T/W_T)$$
$$= [A_i/(P_{Wi}W_T)] \times (W_T/A_T) = (A_i/A_T) / P_{Wi}$$
$$= P_{Ai}/P_{Wi};$$

where A_i and A_T are the number of abortions in subgroup i and in the entire United States (T); where W_i and W_T are the number of women 15–44 in the subgroup and in the entire United States; where P_{Ai} is the proportion of abortions obtained by women in the subgroup; and where P_{Wi} is the proportion of all women 15–44 in the subgroup i.

1987 was the same as in 1985 (28 abortions per 1,000 women 15–44), one can estimate the abortion rate for a subgroup by multiplying the index by 28 (not shown). For example, the abortion rate for Hispanics would be 1.52 times 28, or 43 per 1,000. The index for each subgroup is shown in Table 2. For reference purposes, the percentage distribution of women in the entire U.S. population is shown in the second column of Table 2; the index is simply the first column divided by the second column.

The indices for the age-groups shown in Table 2 illustrate the strong effect of age on abortion rates. The abortion index was highest among women aged 18–19 and above average for all age-groups under 30. The index dropped sharply after age 24, however, reaching a low among women 40 and over. The strong association of the abortion rate with age means that comparison of the other subgroups can be misleading if the subgroups differ in age. For example, the abortion index of widows was below the national average, but this is because they tend to be older than other women. When the age difference is corrected for, it is evident that widows had more abortions per 1,000 than women who had never been married. The age-standardized index shown in the last column of Table 2 corrects for differences in age; it is what the index would be if the age distribution of each subgroup were the same as the age distribution of all women 15–44. Variables such as marital status may also affect the abortion rates for certain subgroups. Unfortunately, the population data needed to make adjustments jointly for age and other variables are unavailable.

As is shown in Table 2, Hispanics made up 13 percent of women having an abortion in 1987, but represented eight percent of women aged 15–44 in the U.S. population. Thus, the ratio of the Hispanic proportion among abortion patients to the Hispanic proportion of the population was 1.52. Their abortion index was 60 percent higher, then, than that of non-Hispanics (0.95), indicating that Hispanic women were 60 percent more likely than non-Hispanic women to have unintended pregnancies that they resolved by means of abortion. This result changes little when age is controlled for. Although the possibility of sampling error in the results for Hispanics is somewhat higher than for other subgroups because of the clustering of the Hispanic population at certain abortion facilities and in certain geographic areas,* it is nevertheless clear that the Hispanic abortion rate was higher than that of the population as a whole. As is the case in some other areas of reproductive behavior,[6] the abortion index among Hispanics falls somewhere between that of whites and that of nonwhites (0.82 and 1.88, respectively).

Women who identified themselves as Protestants were less likely to be having an abortion than were women generally (an index of 0.72). Jewish women also appeared to have a below-average abortion rate, although the degree of uncertainty in the index for this group is high because of the small number of Jews in the sample. The abortion rate among Catholics was close to the national average, while women of other religions and those who professed no religion were much more likely to obtain an abortion than were women nationally. (Women may tend to indicate no religion when given a questionnaire in an abortion facility, even if they might report a religious identification under other circumstances. This could account for the extremely high index—4.04—for those with no religious identification.)

Since black and Hispanic women have higher abortion rates than non-Hispanic whites, the concentration of blacks among Protestants and of Hispanics among Catholics affects the comparisons between these religious groups. With nonwhites and Hispanics excluded, the abortion indices of Catholics as well as Protestants were substantially lower (0.76 and 0.55, respectively—not shown). However, the difference between the two subgroups remains about the same, with Catholics having 38 percent more abortions than Protestants (compared with 36 percent with nonwhites and Hispanics included). When age differences are eliminated, Catholics had about 30 percent more abortions than Protestants.

Sixteen percent of women obtaining abortions responded affirmatively to the question, "Do you consider yourself a born-again Christian or Evangelical Christian?" This question was designed to be comparable to one asked in a number of Gallup polls from which data for the population of women aged 18–44 could be obtained. Those polls show that about 32 percent of women of reproductive age say they are born-again or Evangelical Christians; their abortion rate is only half that of the population as a whole.

Born-again Christians are predominantly Protestant; data from Gallup polls show that 45 percent of Protestants, compared with 14 percent of Catholics, describe themselves as born-again or Evangelical Christians.[7] We found that 31 percent of Protestant and nine percent of Catholic abortion patients identified themselves as born-again or Evangelical Christians. If these Christians are excluded from the religious groupings, the difference in abortion indices between Protestants and Catholics is reduced, but the index among Catholics remains 15 percent higher than that among Protestants (not shown).

Thirty-one percent of all abortions in 1987 were obtained by women attending school. School enrollment was positively associated with abortion rates, except among women aged 15–19. After excluding teenagers and standardizing for age differences, we found that the abortion index among women enrolled in school was 61 percent higher than that of women not enrolled. The desire to complete school is a common reason for seeking to terminate an unplanned pregnancy.[8] Among teenagers, those not enrolled in school were the most likely to have abortions, possibly because they were older than other teenagers and abortion rates increase rapidly during the teenage years. Population data on school enrollment by single year of age are unavailable, so we cannot calculate the association between enrollment and abortion rates among teenagers.

It has long been known that the abortion rate among unmarried women is much higher than that among married women. However, substantial differences also exist among subgroups of unmarried women. As may be seen in Table 2, the abortion index was highest among separated women, who were almost twice as likely to have an abortion as were women generally. Such women accounted for six percent of all abortions. Never-married and divorced women also had an above-average abortion index, while that of widows was below average.

However, these patterns are strongly influenced by age, never-married women being much younger on average than are currently and formerly married women. The age-standardized index shows that after we controlled for age, separated women still had the highest abortion index (2.62). Divorced women and widows were next, with indices about twice the national average. The rate for never-married women was only about one-third above the average, but when those who had never had sexual intercourse were excluded, the age-adjusted abortion index for the remainder of the group (1.99) was about the same as that for widows or divorced women (not shown). Widows and separated, divorced and never-married sexually active women had abortions at 4–5 times the rate of married women living with their husbands.

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*Sixteen percent of the sample was taken from the areas of the United States in which Hispanics are concentrated—Arizona, New Mexico, Texas and certain counties of California (where 15 percent or more of the population is of Hispanic origin). In comparison, 18 percent of all abortions took place in these geographic areas in 1985. This difference suggests that Hispanics may be slightly underrepresented in the sample. Correcting for this difference raises the Hispanic index by six percent, to 1.61. However, this adjustment does not correct for the clustering of Hispanics at particular abortion facilities, another potential source of error.

Cohabitation (that is, a couple's living together without being married) has increased in recent years. Data from the Current Population Survey indicate that in 1987, 3.4 percent of women aged 15–44 were living with an adult man to whom they were not married.[9] This figure may slightly understate the true percentage.[10] Nevertheless, the proportion was much lower than the percentage of abortion patients who were cohabiting when they became pregnant (17.4 percent). The proportion still cohabiting at the time of the abortion was slightly lower (16.6 percent, not shown), indicating that some couples break up after an unintended pregnancy occurs. Even when we take into account the extent to which cohabiting women are concentrated in age-groups with high abortion rates, cohabiting women had the highest abortion index of any group examined in this article—almost five times the overall abortion rate, and nine times that of currently married women. If we assume that the overall U.S. abortion rate in 1987 was 28.0 per 1,000, then 14 percent of all female cohabitants of childbearing age had abortions in that year—20 percent of those aged 15–24, 12 percent of those 25–34 and five percent of those 35–44 (not shown).

There are a number of possible explanations as to why the abortion rate of cohabitants was higher than that of married women. According to an analysis of the 1982 National Survey of Family Growth,[11] cohabitants have sexual intercourse more frequently than either currently married women or sexually active, unmarried noncohabitants. Other contributing factors are that married women are more likely to rely on sterilization,[12] the most effective method, and are probably more likely to carry an unintended pregnancy to term. However, there is little difference between married women and cohabitants in the proportion practicing contraception or the proportion using a medical method.[13]

Another factor differentiating cohabitants from married women is the length of their relationship. One-third of cohabitants in our survey had lived with their partner for less than six months before becoming pregnant, and two-thirds had lived with him for less than two years; in comparison, only one in 10 married abortion patients had been married for less than a year, and over half had been married for more than five years (not shown). The relatively short relationship characteristic of cohabitants could account for high coital frequency and high unintended pregnancy rates, since coital frequency declines with the length of a relationship.[14]

Unmarried sexually active women who were not cohabiting had an age-standardized abortion index of 1.8 (not shown); this means that among unmarried women who had had intercourse, the risk of having an unintended pregnancy that ends in abortion was more than two and one-half times as great if they were cohabiting. This is true despite the much higher contraceptive use among cohabitants than among noncohabiting, unmarried women.[15]

Sixty-eight percent of abortions were obtained by working women. After excluding teenagers and adjusting for the older average age of employed women, we observed that being employed was positively associated with having an abortion: The abortion index among employed women in 1987 was one-third higher than that of women who were not working. This relationship may be affected by marital status, since married abortion patients are less likely than unmarried patients to be employed.

Women who lived in low-income families (those with an annual income of less than $11,000) were more likely to have an abortion than were women who were better off.* The abortion index among low-income women (2.22) was more than twice the national average, while that for women whose annual family income was $25,000 or more (0.59) was six-tenths the national average. Controlling for age reduces these differences slightly, and further decreases would undoubtedly occur if we could control for marital status, since married women have higher family incomes than unmarried women. However, population data on family income broken down by age and marital status, which are necessary for such controls, are unavailable.

The income differential is reflected in the abortion rate according to Medicaid coverage. Twenty-four percent of abortion patients said they had Medicaid coverage for medical care (although not for abortion services in states that exclude such coverage). In comparison, an estimated nine percent of all U.S. women were covered by Medicaid. The abortion rate of women covered by Medicaid was about three times that of women not covered. Women covered by Medicaid have a number of characteristics that may contribute to their relatively high abortion index. For example, they are disproportionately nonwhite, unmarried and poor, all characteristics associated with high abortion rates. And many Medicaid-eligible women are covered by that program because of a prior accidental pregnancy that they carried to term, evidence that they have difficulty in preventing pregnancy.

The high proportion of abortion patients who are covered by Medicaid does not necessarily mean that Medicaid-eligible women are always able to obtain abortion services. The absence of Medicaid funding for abortion services does appear to prevent some women from obtaining such services: Only 31 percent of all abortion patients covered by Medicaid live in states where abortion is excluded from coverage, whereas approximately 50 percent of all Medicaid-eligible women aged 15–44 reside in such states.[16] Some of this difference may be attributable to generally lower abortion rates, even among women not covered by Medicaid, in the states where there is no Medicaid funding of abortion. However, in 1985, the abortion rate of Medicaid-covered women in the nonfunded states was 46 percent of the rate in the funded states, whereas the abortion rate for *all* women in the nonfunded states was 55 percent of the rate in the funded states.† The lack of Medicaid funding may play a role in this difference by exerting an inhibiting effect. A study on this subject found that about 20 percent of women who would have obtained a Medicaid-funded abortion had funding been available carried their unwanted pregnancies to term in the absence of funding.[17]

Seventy percent of women having an abortion said that they definitely or probably intended to have children in the future; the abortion index for such women was higher than that for women who did not want more children (1.13 and 0.79, respectively). However, women who intend to have more children are younger, on average, than those who do not; when age was controlled for, we found that those who did not want more children had a higher abortion index. Those who have achieved their desired family size are probably less willing to carry an unplanned pregnancy to term; however, many of them rely on sterilization, which should reduce this group's overall rate of unintended pregnancy.

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*It should be noted that the income data have a higher level of uncertainty than other variables because of a high nonresponse rate. In addition, the most recent national data are for income during 1985, and those data are not available in categories fine enough to allow an adjustment for inflation. Nevertheless, the trends observed in this article are so strong that they are unlikely to have occurred because of inaccurate data.

†These estimates assume that the percentage of abortion patients covered by Medicaid was the same in 1985 as was found for 1987 in this survey.

As expected, women who resided in counties classified by the Census Bureau as metropolitan had almost twice the abortion index of nonmetropolitan women. The relatively low abortion index among nonmetropolitan women may reflect difficulty in gaining access to abortion services, which are unavailable in the counties where 79 percent of nonmetropolitan women reside.[18] In addition, factors related to the women themselves may play a part: For example, it is likely that a larger proportion of metropolitan women are cohabiting, which is a risk factor for unintended pregnancy leading to abortion.

Abortion Patients' Contraceptive Use

There are currently no national data on contraceptive use by women who have abortions. Six states collect such data, but they use varied definitions of contraceptive use, ranging from what method, if any, was used at the time of conception to what method, if any, was used in the preceding year.[19] The contraceptive-use-status derived from these variations can be quite diverse. For example, in a study of abortion patients in Illinois, 60 percent of the women had used no method "at [the] time of conception," but only 26 percent "ordinarily" used no method.[20]

In this article, a woman is classified as having had a contraceptive failure* if she said she had used a method of birth control during the month of her last menstrual period. If a woman started or stopped using a method during the same month as her last menstrual period, her pregnancy was classified as a contraceptive failure if, in response to another question, the woman said that she was still using some method at the time she became pregnant.

A sample of abortion patients represents a special subset of the population of all women at risk of unintended pregnancy. We have already seen how abortion patients compare with the general population of women with regard to a number of social and demographic characteristics. Before discussing the data on the contraceptive practices of women who had abortions, however, we must delineate the intricate ways in which the contraceptive behavior of abortion patients does or does not reflect the behavior of the general population.

First, the population of abortion patients is drawn disproportionately from among women who use no method of birth control, since the chance that a sexually active woman will become pregnant is greatest when she uses no contraceptive method. An analysis of data from the 1982 National Survey of Family Growth shows that no contraceptive was used in 21 percent of all months of exposure to the risk of unintended pregnancy, but that 67 percent of all unintended pregnancies occurred during a period of no contraceptive use.[21] A recent survey of a national sample of U.S. women in 1987 found that eight percent of those at risk of unintended pregnancy were using no contraceptive method.[22] We would expect a higher proportion of nonusers to be found among abortion patients.

Second, contraceptive-use patterns among abortion patients are determined by three factors: contraceptive use in the general population, the failure rate of the specific method used and the likelihood of having an abortion if an unintended pregnancy occurs. Methods with relatively high failure rates are overrepresented among abortion patients, while those with low failure rates are underrepresented.

Among our sample of abortion patients, 91 percent had used a method of contraception at some time in their lives, while 51 percent were using one during the month in which they conceived. The overwhelming majority of women who were not using a method during the month in which they became pregnant had used one at some prior time. What may be most disturbing is that many women appear to be getting "caught" within a short time of stopping method use: Eighteen percent of the prior users became pregnant within a month of stopping and 47 percent within three months. (The average waiting time to conception is generally 5–10 months.[23])

Nearly three-quarters of the abortion patients who had stopped using a method prior to becoming pregnant said that they had most recently used the pill; about 15 percent of these women had become pregnant within a month of ceasing pill use, while 44 percent had become pregnant within three months (not shown). Why would so many women allow themselves to be exposed to unprotected intercourse, especially when they had been using such a highly effective method? Part of the answer may lie in the popular (though mistaken) belief that after a woman stops using the pill, she experiences a period of several months during which she cannot conceive.[24] It is during this supposed "grace period" that many women may be deciding upon their next method or arranging for medical consultation. Other women may believe that they need a "rest period" from the pill, but may fail to take other precautions.

One-fourth of the women who stopped using a method prior to becoming pregnant were using methods less effective than the pill, but a disproportionately large percentage of these women became pregnant soon after stopping. For example, 74 percent of those who were using spermicidal suppositories became pregnant within three months of discontinuing them; comparable proportions for other methods were 69 percent for the condom, 65 percent for withdrawal, 57 percent for foam, 56 percent for the sponge, 49 percent for rhythm and 48 percent for the diaphragm. These women may be sporadic users who are often exposed to short periods of nonuse.

How long had women who had discontinued contraceptive practice been using their most recent method before stopping? Sixty-two percent had used it for 12 months or less, 42 percent had used it for six months or less and 24 percent had used it for three months or less. The proportions who stopped using a method within six months of initiation were highest for the sponge (68 percent), the condom (66 percent), withdrawal (64 percent), the vaginal suppository (59 percent) and foam (54 percent). About 20 percent of pill users had relied on that method for over three years before discontinuing, but most (59 percent) had used it for 12 months or less.

Abortion patients who have never used contraceptives are of special interest, since they may represent a failure in the dissemination of information about contraceptive methods or services. Such women accounted for nine percent of the sample of abortion patients; however, the proportion was larger among some subgroups. Abortion patients who have never used a

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*Contraceptive failure is derived from women's responses to several questions about their contraceptive use around the time at which conception is believed to have occurred. We use in this article the concept of "use-failure," in which pregnancies arising from brief lapses in contraceptive use or improper use are counted in addition to technical failure of the method itself. The National Survey of Family Growth operationalized contraceptive-use failure as a conception that occurred during a month in which the couple was using a method; that definition is used in this article as well.

Table 3. Percentage distribution of abortion patients who were using a contraceptive method during the month in which they became pregnant, by method, according to race or ethnicity and age

Method	Total	Race/ethnicity				Age			
		White*	Black*	Hispanic	Other*	≤17	18–19	20–29	≥30
Sterilization	0.4	0.4	0.2	0.4	0.0	0.0	0.0	0.1	1.4
Pill	26.0	20.9	39.5	30.9	22.1	18.3	29.1	31.2	14.0
IUD	0.6	0.5	0.6	1.7	0.0	0.0	0.0	0.7	1.1
Condom	28.7	31.2	23.1	22.7	34.8	47.4	34.3	25.2	26.8
Diaphragm	10.1	12.0	6.9	5.7	7.7	0.7	2.0	10.5	17.7
Sponge	9.1	10.6	7.6	4.6	3.6	1.2	3.8	10.2	12.6
Foam	4.0	3.5	5.5	4.9	1.1	0.4	1.0	3.6	8.1
Suppository	2.6	2.2	3.5	3.7	0.6	0.6	1.7	3.1	2.8
Rhythm	7.3	6.7	5.3	12.3	14.7	2.1	7.7	6.6	11.0
Withdrawal	11.1	11.9	7.6	12.4	14.8	29.4	20.4	8.8	4.1
Other/ don't know	0.2	0.1	0.1	0.7	0.6	0.0	0.0	0.1	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

*Excluding Hispanics.

method tend to be concentrated among young, unmarried women who have probably only recently begun having intercourse: Never-users accounted for over one-quarter of never-married teenagers under age 18, and over one-third of never-married Hispanics and blacks in this age-group (not shown). These young abortion patients were more than twice as likely as corresponding 18–19-year-olds to have had no prior contraceptive experience.

The fact that over half of the women who had an abortion in 1987 were trying to prevent conception during the month in which they became pregnant probably is less the fault of technical imperfections inherent in contraceptive products than of the complexity of factors underlying the relationship between a user and her chosen method. Among these factors may be her ability to use the method correctly and to integrate the regimen of method use into the patterns of her daily life and, especially, her sexual lifestyle.

Table 3 presents the distribution of abortion patients who were using a method during the month of conception, by the specific method that they used. The condom and the pill were used by the largest proportions of women who had abortions (29 percent and 26 percent, respectively); these were followed by withdrawal (11 percent), the diaphragm (10 percent), the sponge (nine percent) and rhythm (seven percent). Each of the remaining methods was used by no more than four percent of the women.

These proportions do not directly reflect the distribution of women in the general population using the various methods;[25] for example, sterilization, the most commonly used method in the United States, accounts for fewer than one percent of abortion patients because its failure rate is extremely low. The condom is the third most frequently used method in the United States, after sterilization and oral contraceptives, but because it has a higher failure rate than the pill, it accounts for more abortion patients than the pill. Although the pill has a very low failure rate, it accounts for the second largest proportion of abortion patients because it is the reversible method used by the largest number of women in the general population, and its use is concentrated among young women, who tend to practice contraception less successfully.

The patterns of contraceptive use among various subgroups shown in Table 3 are similar to those found in the general population.[26] Blacks and Hispanics who used a method during the month of conception were more likely than whites and others to have used the pill, but were less likely than whites and others to have used the condom or the diaphragm. Hispanics and women of races other than white or black were more likely than white or black women to have been using rhythm during the month of conception; blacks were less likely than any other group to have used withdrawal. Almost half of abortion patients aged 17 and under who relied on a method during the month in which they became pregnant were using the condom, compared with about one-third of the 18–19-year-olds and one-quarter each of women 20–29 and women 30 and older. Contraceptive users under age 20 were also much more likely to have been relying on withdrawal during the month of conception than were those 20 and older (24 percent and seven percent, respectively—not shown).

The majority of the abortion patients who were using a method during the month of conception had been using it for one year or less (not shown). The proportion of these short-term users ranged from 72 percent of the women who had used spermicidal suppositories to 65 percent of those relying on the sponge, 64 percent of those using withdrawal, 58 percent of those relying on foam, 57 percent of those using the pill and 43 percent of those using the diaphragm or rhythm. About 20 percent of the users of each of these methods had become pregnant within three months of starting their method, compared with 14 percent of the pill users.

Most abortion patients failed to prevent an unintended pregnancy, either through nonuse or because they used a method poorly. Information about the likelihood that women in certain subgroups will fall into either of these categories is useful to more effectively direct efforts at either initiating or improving contraceptive practice in these populations.

Nonuse is greatest among abortion patients who are young, poor, black, Hispanic or less educated. As Table 4 shows, 61 percent of those 17 and younger were not using contraceptives during the month they became pregnant, compared with 41 percent of those 30 and older. Fifty-seven percent of women with incomes below 100 percent of the poverty level obtaining abortions had not used a method, compared with 43 percent of women whose income was more than 200 percent of the poverty level. The association of low-income status with contraceptive nonuse during the month of conception persisted across all age-groups (not shown).

The percentage of abortion patients using no method was higher among blacks and Hispanics (58 percent each) than among whites (42 percent) and those categorized as "other" (46 percent). These differences were apparent in all age-groups, except for some trivial reversals among women 30 and over (not shown). Pregnancy was attributed to nonuse by 57 percent of women with no more than a high school education, compared with 39 percent of more educated women (not shown). This relationship between lower educational attainment and contraceptive nonuse held across all age-groups.

Separated and never-married abortion patients were more likely to have used no method during the month of conception than were those who were currently mar-

Table 4. Percentage distribution of abortion patients, by whether they were using a contraceptive method during the month in which they became pregnant, according to age, poverty status* and race and ethnicity

Characteristic	Used	Did not use			Total
		All	Prior user	Never-user	
Total	**51.3**	**48.7**	**39.7**	**9.0**	**100.0**
Age					
≤17	39.4	60.6	33.9	26.7	100.0
18–19	48.8	51.2	39.8	11.4	100.0
20–29	51.9	48.1	41.9	6.2	100.0
≥30	58.8	41.2	36.6	4.6	100.0
Poverty status					
<100%	43.0	56.9	44.2	12.7	100.0
100–149%	48.9	51.0	43.0	8.0	100.0
150–200%	52.5	47.5	40.2	7.3	100.0
>200%	57.1	43.0	35.6	7.4	100.0
Race/ethnicity					
White	57.6	42.3	36.1	6.2	100.0
Black	41.8	58.2	47.7	10.5	100.0
Hispanic	42.1	57.9	41.2	16.7	100.0
Other	53.7	46.3	31.9	14.4	100.0

*Poverty status is established by determining the ratio of a woman's annual family income to the federally designated poverty level, which was $11,200 for a family of four in 1987.

ried or were widows or divorced (not shown). After we controlled for age, this trend persisted among all but never-married women 18–19 years of age.*

Finally, there was no difference between unmarried cohabiting and noncohabiting abortion patients in the likelihood of nonuse during the month in which they became pregnant (not shown). However, when we controlled for age, an interesting distinction appeared between teenagers and those 20 and over: Among teenagers, 64 percent of those who lived with their boyfriends at the time of conception were not practicing contraception, compared with 55 percent each of those who were unmarried noncohabitants and those who were married; among older abortion patients, there was little difference in contraceptive-use status between these three groups.

It is generally believed that involvement in school or work offers women alternative roles and options that they might have to forfeit if they were to experience a mistimed or unwanted pregnancy; such involvement, it is thought, may lead to added vigilance in contraceptive use.[27] Indeed, we found that schooling and employment were two factors positively associated with the likelihood that an abortion patient had used a contraceptive method during the month of conception (not shown). Upon controlling for age, we found that patients who were still in school were more likely than those not in school to have been using a method during the month of conception; this tendency was most pronounced among young women under 18, and diminished progressively with increasing age. In addition, upon controlling for age, we found that working abortion patients were more likely than nonworking ones to have used a method during the month of conception. (The only discrepancy was among 18–19-year-olds, whose use patterns appeared unrelated to employment.)

We also compared a woman's intention to have children in the future with her contraceptive status during the month of conception. One might expect women who intend to have no more children to practice contraception more conscientiously than women who intend to have children in the future. However, this expectation was not supported by the data. Fifty percent of women who intended future births had been using a method during the month in which they became pregnant, compared with 53 percent of those who intended no more births. Moreover, the addition of controls for age had no effect. (It is important to remember that a large proportion of women who want no more children are sterilized, and are therefore very unlikely to appear in this sample.)

Jewish abortion patients were much more likely than patients affiliated with other religious groups to have been using a method during the month in which they became pregnant; this was the only religious difference in contraceptive-use status at the time of conception. Although a difference between Protestants and Catholics could be masked by the different proportions of blacks and Hispanics among Protestants and Catholics, a comparison between white non-Hispanic Protestants and Catholics revealed no such differences.

Almost half of the women in this sample of abortion patients were nonusers (prior users and never-users), but there is little evidence that women rely on abortion as their main method of avoiding unplanned childbearing. A survey carried out in 1982 found that of all women exposed to the risk of unintended pregnancy, only four-tenths of one percent of those who used no method said they did so because they relied on abortion instead.[28] Other research has shown that the primary reason women give for nonuse or discontinuation of certain methods is concern about possible side effects.[29] Since this study is based on a sample of abortion patients, both of these tendencies would tend to be somewhat inflated among patients who were nonusers. Nonetheless, even allowing for an inflation factor of several times, the proportion of abortion patients who consciously relied on abortion for fertility control would still be extremely small. Contraceptive nonuse among abortion patients probably reflects the more general problem of concerns over side effects and dissatisfaction with current methods among most women, rather than any decision simply to rely on abortion.

Discussion

It is sometimes argued that women have abortions because they are ignorant of contraception or are unwilling to make an effort to avoid pregnancy. One theme apparent in this survey of abortion patients is that many of the women tried to prevent pregnancy. Indeed, 91 percent had practiced contraception at some time, and 70 percent either had used a method during the month in which they became pregnant or had discontinued use within three months of conception. There appears to be a fine line between use and nonuse among these women: Those who became pregnant while practicing contraception most likely used their method improperly or inconsistently. The same might also be said of women who became pregnant soon after discontinuing method use, for whom nonuse may represent more of a lapse in use (an extreme example of poor use) than real discontinuation.

Women who have never used contraceptives represent a special challenge to those providing family planning services and sex education. Nine percent of women obtaining abortions (most of them teenagers) had had no prior contraceptive experience. This suggests a need for more education in the schools about the risks of pregnancy from unprotected intercourse, the pros and cons of available methods and the availability of confidential and inexpensive services. Abortion facilities also have a special responsibility to women with no prior contraceptive experience, as such women are in particular need of thorough and complete contraceptive counseling and services. At least one study has found that intensive counseling may be especially effective in promoting subsequent contraceptive use among young abortion patients who had never practiced contraception.[30]

The survey results also indicate other

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*This comparison does not include women under age 18, because of the small number of cases in the categories of married, separated and divorced/widowed.

groups that should be the focus of special efforts to prevent unintended pregnancies leading to abortion. The highest abortion rate was found among women who had been living with a partner to whom they were not married. Each year, approximately one in five cohabiting women 15–24 years of age have an abortion. The knowledge that they are a high-risk group might encourage them to use contraceptives more effectively. Similarly, separated women are at relatively high risk for abortion.

It is surprising that despite their heavy reliance on sterilization,[31] 30 percent of all abortions were obtained by women who wanted no more children; after being adjusted for age differences, their abortion index was higher than that of women who intended to have more children. Some abortion patients may not have realized that they wanted no more children until they were faced with the pregnancy; nevertheless, the findings suggest that there may be many unsterilized couples for whom sterilization would be an appropriate method of birth control.

Other groups at high risk of abortion are low-income women and those covered by Medicaid. Although programs such as Title X and Medicaid have made contraceptive services accessible to most of these women, more needs to be done to bring their levels of unintended pregnancy closer to those of more affluent women.

Our results show that abortion affects all segments of the population of women of childbearing age. Although beliefs may have a protective effect through their influence on behavior, even a woman who says that she is a born-again or Evangelical Christian may need abortion services; in fact, such women represented 16 percent of those having abortions. The abortion rate among Catholics was higher than that among Protestants, despite the strong doctrinal opposition of the Catholic Church to abortion and the visibility the Pope has given to the issue. Continued small differences in contraceptive practice may account for some of this differential: Although similar proportions of Catholics and Protestants at risk of unintended pregnancy use a contraceptive method (88 and 89 percent, respectively, in 1982), Protestants are more likely to rely on surgical sterilization and the pill, the two most effective methods.[32] The higher proportion of born-again or Evangelical Christians among Protestants also helps to account for the lower abortion rate among these women.

The desire to complete school and to continue one's career is often given as a reason for terminating a pregnancy.[33] The importance of these factors is borne out by the finding that women who were still in school and those who were currently employed had higher abortion rates than those of women who were not in school or were not employed. One reason may be that both enrollment in school and employment may reflect a financial status that would make it impossible for a woman to raise a child without resort to public assistance.

The results described in this article have important implications for those providing family planning services or postabortion contraceptive counseling. Lack of knowledge of methods and services is evidently not the main problem for most women having abortions. Lack of medical contraceptive services may be a problem for some, but at least 91 percent of all women surveyed had used a medical contraceptive at some time and about half within one month of conception. Rather, the data examined here present compelling evidence of the problems women have in successfully using even the most effective methods. It is not enough simply to make contraceptive services available. Particularly for the most vulnerable subgroups, special emphasis must be placed on helping women understand the necessity of correct and consistent use, on supplying them with a method to use as a backup, on providing clear and accurate information about likely side effects and what to do about them, on dispelling myths about a contraceptive method or about the likelihood of pregnancy, and on offering counseling to help ensure that each woman chooses a method that meets her needs.

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Why Do Women Have Abortions?

By Aida Torres and Jacqueline Darroch Forrest

Summary

Most respondents to a survey of abortion patients in 1987 said that more than one factor had contributed to their decision to have an abortion; the mean number of reasons was nearly four. Three-quarters said that having a baby would interfere with work, school or other responsibilities, about two-thirds said they could not afford to have a child and half said they did not want to be a single parent or had relationship problems. A multivariate analysis showed young teenagers to be 32 percent more likely than women 18 or over to say they were not mature enough to raise a child and 19 percent more likely to say their parents wanted them to have an abortion. Unmarried women were 17 percent more likely than currently married women to choose abortion to prevent others from knowing they had had sex or became pregnant.

Of women who had an abortion at 16 or more weeks' gestation, 71 percent attributed their delay to not having realized they were pregnant or not having known soon enough the actual gestation of their pregnancy. Almost half were delayed because of trouble in arranging the abortion, usually because they needed time to raise money. One-third did not have an abortion earlier because they were afraid to tell their partner or parents that they were pregnant. A multivariate analysis revealed that respondents under age 18 were 39 percent more likely than older women to have delayed because they were afraid to tell their parents or partner.

Background

Each year since the late 1970s, approximately 30 percent of all pregnancies in the United States have ended in abortion (miscarriages excluded).[1] The likelihood that a pregnant woman will have an abortion differs substantially among subgroups of women,[2] reflecting the influence of two factors—the frequency of unintended pregnancy and the likelihood that an unintended pregnancy will be resolved by abortion. The latter factor raises the question of whether there are differences in the reasons women have abortions, across the subgroups of women who do so.

By means of a survey of abortion patients, the study reported in this article addresses the question of why certain women elect to have an abortion. The study also examines why some women who have abortions obtain them fairly late in gestation. Nationally, four percent of abortions occur at 16 or more weeks of gestation.[4] Medical data show that the normally low rates of complication and death associated with induced abortion increase substantially at later gestations.[5] In addition, obtaining late abortions poses difficulties because they are more expensive,[6] providers are fewer and harder to find,[7] and many find late abortions more troubling than those performed early in gestation. Previous studies have looked exclusively at the social and demographic characteristics of women who have late abortions,[8] at problems related to access[9] or at personal factors, such as the ability to recognize signs of pregnancy.[10] In the study reported here, we investigate all these factors simultaneously and provide some indication of their relative importance.

The Sample

The Alan Guttmacher Institute (AGI) has periodically surveyed U.S. abortion providers to obtain data on the number of abortions performed in a year; the last such survey was conducted in 1985. A total of 819 abortion facilities in the United States performed at least 400 abortions each in 1985; they represented 31 percent of all abortion providers, but accounted for 90 percent (1.4 million) of all abortions.[11] Only such facilities were eligible for the study, and priority was given to providers that had participated in past AGI surveys. The selected providers were primarily (but not exclusively) nonhospital facilities.*

Some 42 facilities were originally invited to participate in the study; these included six at which a relatively large number of late abortions (those at 16 or more weeks' gestation) were performed. However, five general facilities and one provider of late abortions refused to participate. The latter was replaced by another such provider, and one more facility where a large proportion of late procedures were performed was added because of uncommonly low attendance during the survey period at one facility providing late abortions.†

Over a five-month period beginning in November 1987, patients at each partici-

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Aida Torres is senior research associate and Jacqueline Darroch Forrest is vice president for research with The Alan Guttmacher Institute. The authors thank Stanley K. Henshaw for his invaluable statistical help, Barbara Okun for her programming assistance, Susan Eisman for having supervised the fieldwork and Lisa Bezak for her help throughout the project. The authors are also very grateful to the providers and patients who participated in the pretest or study, as well as to all who helped develop and refine the questionnaire, especially Ann Cook, a private consultant, and Barbara Radford and Lois Schoenbrun of the National Abortion Federation. The research was supported in part by the Robert Sterling Clark Foundation, The General Service Foundation and The Prospect Hill Foundation.

*The 689 nonhospital facilities that provided 400 or more abortions in 1985 accounted for 81 percent of all procedures in that year (see reference 1).

†Although such a purposive sample departs from the goal of having a random probability sample of all providers, it was deemed necessary because past experience led us to believe that obtaining agreement for participation from some facilities, especially hospitals, would have cost a great deal of staff time. The characteristics of patients at facilities included in the study were compared with those of patients at facilities not included, based on information from a larger study involving a probability sample of 9,480 patients in 103 facilities (see S. K. Henshaw and J. Silverman, page 158 of this issue); there were no substantial differences between patients at the two groups of facilities.

pating general abortion facility were surveyed during a 1–3-week period (the length depended on the facility's caseload). Providers of later abortions were asked to administer the survey to 60 consecutive patients; this process took 4–6 weeks. Although providers were asked to give a questionnaire to each woman obtaining an abortion during the study period, responses were not received from every patient, primarily because some facilities skipped some days or did not give out surveys during very busy times. Because of concern that such lapses in the administration of the study could yield a biased sample of patients from some providers' failure to supply the questionnaire to every patient, we established a minimum response rate that would have to be met before a facility's patients could be included in the analyses. Eight facilities (none providers of large proportions of late abortions) had a total response rate of less than 56 percent and were eliminated.

The data analyzed below come, therefore, from a sample of 30 providers, seven of which had high proportions of patients who obtained abortions at 16 or more weeks' gestation. All but three of the 30 are nonhospital facilities; each of the four regions of the country is represented, but midwestern providers are somewhat overrepresented. The average patient response rate was 80 percent, and was 81 percent or higher in 17 of the 30. The number of respondents per facility ranged from 12 to 127, with an average of 63.

In all, 1,900 women responded with usable information, of whom 420 had been pregnant for 16 or more weeks. Because such women had been oversampled, their responses concerning their reasons for having an abortion were weighted to reflect the proportion of U.S. abortion patients who obtain midtrimester abortions. Analyses of causes of delay are based on unweighted responses, however.

Distributions of respondents by age, race, ethnicity, Medicaid status, marital status and region were compared with available national data. Respondents were more likely than all abortion patients nationally to be white (75 percent vs. 69 percent) and less likely to be Hispanic (seven percent vs. 13 percent). The discrepancies probably arose because a greater proportion resided in the North Central region than is the case among all abortion patients (34 percent vs. 18 percent) and a lesser proportion were from the South (23 percent vs. 29 percent) or Northeast (20 vs. 26 percent). Distributions of respondents by age and marital status were quite similar to those of all abortion patients, but 17 percent of respondents were covered by Medicaid, compared with 24 percent nationally.

Table 1. Percentage of abortion patients reporting that a specific reason contributed to their decision to have an abortion, by age, and percentage saying that each reason was the most important

Reason	Total*	Age†					% most important*
	(N= 1,900)	<18 (N= 275)	18–19 (N= 309)	20–24 (N= 645)	25–29 (N= 337)	≥30 (N= 319)	(N= 1,773)
Woman is concerned about how having a baby could change her life	76	92	82	75	72	69	16
Woman can't afford baby now	68	73	73	70	64	58	21
Woman has problems with relationship or wants to avoid single parenthood	51	37	46	56	55	50	12
Woman is unready for responsibility	31	33	40	36	25	18	21
Woman doesn't want others to know she has had sex or is pregnant	31	42	41	35	21	22	1
Woman is not mature enough, or is too young to have a child	30	81	57	28	7	4	11
Woman has all the children she wanted, or has all grown-up children	26	8	12	23	31	51	8
Husband or partner wants woman to have abortion	23	23	29	25	18	20	1
Fetus has possible health problem	13	9	13	12	14	17	3
Woman has health problem	7	3	4	7	8	15	3
Woman's parents want her to have abortion	7	28	12	4	3	2	‡
Woman was victim of rape or incest	1	1	1	1	1	‡	1
Other	6	2	5	8	5	8	3

*Ns are unweighted.

†The Ns upon which the age-breakdowns are based do not add to 1,900 because age was not available for some women.

‡Less than 0.5 percent.

There was little difference among regions in the most important reasons given for obtaining an abortion, but there were differences by race and by Medicaid status. In an attempt to obtain a more appropriate description of the reasons U.S. women have abortions, responses were weighted by these two factors, as well as by the gestational distribution of abortions.

The Questionnaire

Information was collected by means of a self-administered questionnaire distributed by clinic staff to patients. The survey instrument was reviewed by a number of professionals with some experience in the provision of abortions and was pretested with some 150 patients at seven facilities. It was made available in both English and Spanish. The questionnaire explained that participation was voluntary and that the information collected would remain confidential. The questionnaire covered both the women's reasons for choosing to have an abortion and (for those at least 16 weeks pregnant) their reasons for having delayed obtaining an abortion.

An attempt was made to include as precoded, closed-ended questions every possible reason for having an abortion, so that the survey form would be easy for respondents to fill in quickly. However, most questions contained an additional, unspecified category, where women could add information if their reason was not covered by the precoded options. They were asked a series of questions about whether specific factors had contributed to their abortion decision, but they were not asked to identify the degree to which each reason contributed to their decision or to state the relative importance of each.

Both to ensure that no reasons were missed and to find out which were most important, respondents were also asked to write, in their own words, why they were having an abortion; if they had more than one reason, they were requested to note the most important first. This question preceded the precoded questions, so as not to influence respondents' replies.

The five precoded questions asked: "Is one reason you are having an abortion

- because you cannot afford a baby now?"
- because you don't want to be a single mother or because of problems with your

relationship with your husband or partner?"
- because having a baby would dramatically change your life in ways you are not ready for?"
- because of some physical problem or problem with your health?"
- because of possible problems affecting the health of the fetus?"

The first three questions had subcategories offering several factors to further describe the woman's situation; the others simply asked the respondent to give more information about her situation. The woman was asked to circle one or more of these subcategories or to provide further information in her own words.

A sixth question asked "What other reasons contribute to your decision to have an abortion?" Respondents were to select as many of the following eight precoded subcategories or two or more open-ended subcategories as were relevant:
- "My husband/partner wants me to have an abortion."
- "My parents want me to have an abortion."
- "I don't want my parents or other people to know I had sex."
- "I don't want my parents or other people to know I got pregnant."
- "I was raped."
- "I became pregnant as a result of incest."
- "I do not feel I am mature enough to raise a(nother) child."
- "I already have as many children as I want."
- "I have another reason."
- "None of the above."

All of the 1,900 survey respondents checked at least one of the six precoded reasons (including "other"), and 1,773 (93 percent) wrote in a reason in response to the open-ended question. If a reason offered in response to the latter question also fell into one of the precoded categories (including "other"), it was classified there; if not, a new category was developed. If a respondent gave a reason spontaneously and later checked it from among the precoded categories, the response was counted only once. If only one reason was provided, whether written spontaneously or circled in answer to a specific question, it was coded as the most important reason.

Almost all of the responses to the open-ended question fell into one of the 13 precoded categories listed above. However, some women said in their replies to that question that they were choosing to have an abortion now because they were "not ready for the responsibility of having a child." As is discussed below, these women did not fall clearly into any one of the 13 categories, so their response was left as a separate category.

The question of why women have later abortions was explored by means of another set of questions directed only at respondents 16 or more weeks pregnant at the time of their abortion. They were asked to answer the following set of precoded questions: "Is one reason you are having an abortion now instead of earlier
- because it took some time before you knew you were pregnant or how far along you were?"
- because it took you a long time to decide to have an abortion?"
- because it was hard for you to make arrangements for an abortion?"

Women who replied that one of these factors contributed to the delay were asked to further describe their situation; the first and third listed possible explanations, while the second was open-ended.

These women were also asked to mark which, if any, of a series of other factors described why they were having a later abortion. These were:
- "I did not think it was important to have it earlier."
- "I did not know I could get an abortion."
- "I was waiting or hoping for my relationship with my husband or partner to change."
- "I was afraid to tell my partner or my parents that I was pregnant."
- "Someone I am close to put pressure on me not to have an abortion."
- "I found out late in the pregnancy that the fetus has a defect or is not normal."
- "Something in my life changed since I became pregnant."
- "I have another reason."
- "None of the above."

Respondents were also asked to specify which of the reasons they cited for having a late abortion had delayed their obtaining the abortion for "the longest amount of time." Of the 420 respondents at 16 weeks or more of gestation, 95 percent gave a reason for having delayed, but only 74 percent also cited the reason responsible for the largest share of delay.

Reasons for Choosing Abortion

Most respondents said that more than one factor had contributed to their decision to have an abortion: Only seven percent cited just one reason for having decided to obtain an abortion. Even among the few women who said their pregnancy had resulted from rape or incest, 95 percent gave at least one other factor that had contributed to their decision. On average, the respondents cited 3.7 reasons, with 63 percent reporting 3–5 different reasons and 13 percent noting 6–9.

No strong patterns tied different reasons together. An examination of cross-tabulations and correlations among reasons and an attempt to identify a smaller number of more general reasons through factor analysis both indicated little justification for collapsing categories further. Women who cited a specific reason gave other factors as having contributed to their decision in proportions similar to women who did not give that specific reason.

In the cases of four reasons, there were significant differences between the respondents who described themselves as not ready for the responsibility of having a child and those who did not say they were unready. However, there were no significant differences for the remaining reasons, and most respondents in both groups gave a number of other reasons. Because "not ready" was not clearly substituting for one or more other reasons, it was kept as a separate category.

Three reasons were each cited by at least half of all respondents, as shown in Table 1. Three-quarters said they had decided to have an abortion because they were concerned about how having a baby would change their life. About two-thirds said they could not afford to have a child now; half said that they did not want to be a single parent or had relationship problems.

Slightly fewer than one-third of respondents said they had decided to have an abortion because they were not ready for the responsibility of having a child, because they did not want others to find out that they were sexually active or had become pregnant or because they were not mature enough to have a child. Ninety-nine percent who did not want others to know said they were concerned about people finding out that they had become pregnant; 15 percent specified that they did not want others to know they were sexually active (not shown). As noted above, there was no precoded question regarding unreadiness for the responsibility of having a child; the proportion giving this response might have been higher if it had been offered as a precoded question.

The six most commonly mentioned factors were given by 82 percent of the patients as the most important reason they were having an abortion. The rank order of the most important reasons differed, however, from the overall ranking of factors reported to have contributed to the women's decision. The two factors most frequently given as most important were that the woman could not afford a child and that the woman was not ready for the responsibility (both cited by 21 percent). Although feeling concerned about the changes a baby would bring or about single parenthood or relationship problems were noted by over half of all respondents, these reasons were described as most important by only 16 and 12 percent of respondents, respectively. These four were mentioned by 70 percent of all respondents. The other factors cited by many respondents as having contributed to their decision were in most cases mentioned by few as the most important reason.

Respondents were asked to provide more descriptive detail about five of the precoded reasons. Table 2 shows these more specific descriptions, given by women who cited the three most common reasons for abortion and who offered additional details. Two-thirds of those who said they were concerned about the changes their lives would undergo explained that they chose abortion because having a child now would interfere with their job, employment or career. (This represented half of all abortion patients in the survey.) Almost half said that having a child now would conflict with their schooling, while more than a quarter reported that children or other people depended on them for care. Overall, only eight percent of the women failed to provide any additional, explanatory information.

Some 33 percent of those who said they could not afford to have a baby gave no further explanation. Of those who did, two in five said they were students or were planning to study, one in five that they were unmarried or unemployed and one in seven that they had a low-paying job.

Among women who said that they did not want to be single parents or that they had relationship problems, the reasons most commonly reported were that they did not want to marry their partner (given by half of such women who provided explanations), that their current relationship might break up soon (by one-third), that their partner or was unable to marry them (by three-tenths) or that they were not in a relationship with anyone (one-quarter). Nineteen percent gave no further information.

Of those women who said that possible fetal problems had contributed to their decision and who gave further details (not shown), 42 percent were worried about medication they had taken before discovering they were pregnant, and 45 percent reported having used alcohol or drugs before realizing they were pregnant. Only eight percent said, however, that a physician had advised them that the fetus had a defect or was abnormal. Among women who said that their own health had contributed to their decision to have an abortion and who provided additional information, 79 percent cited a serious physical problem, 13 percent mentioned other physical complaints and 11 percent gave a mental or emotional problem. In all, 53 percent of those having an abortion because of a health problem said that a doctor had told them that their condition would be made worse by being pregnant.

Differences in Reasons for Abortion

The reasons women gave for having decided to have an abortion differed by age, as can be seen in Table 1. At all ages, the most commonly cited reason was that the respondent was concerned about the ways in which having a baby would change her life; respondents under age 18 were most likely to have cited this factor (92 percent), while women 30 and older were least likely to have mentioned it (69 percent).* Not being mature enough to have a child was the second most commonly cited reason among the youngest patients, and financial problems ranked third. These reasons were ranked third and second, respectively, by women aged 18–19. Financial reasons were cited by an equal proportion of 18–19-year-olds and those under 18; in fact, financial concerns were the second most important reason for those 18 and over, although women 25 and older were less likely than younger women to have obtained an abortion for this reason. Among those aged 20–29, the desire to avoid single parenthood or relationship problems (given by 55–56 percent of respondents) was the third most common reason, while the fact that they had completed childbearing was cited by substantially fewer (23–31 percent). Among respondents 30 and over, however, the latter reason was given by about the same proportion as the former (51 percent and 50 percent, respectively).

In contrast to the large proportion of teenagers who said they were not mature enough to have a child, only 28 percent of 20–24-year-olds gave this as a reason, as did only 4–7 percent of those 25 and older. Younger women were most likely to say they did not want others to find out that they were having sex or had become pregnant; however, unexpectedly, we found that 21–22 percent of respondents 25 and older also gave this reason. As anticipated, adolescents were more likely than older women to say that their parents wanted them to have an abortion; 18–29 percent of women of all ages reported that their husband's or partner's desire that they have an abortion influenced their decision.

Never-married respondents were the most likely to attribute their abortion decision to their concern about the effect bearing a child would have on their lives (82 percent), but this reason was also noted by 58 percent of currently married abortion patients (not shown). Both never-married and formerly married women were more likely to say they could not afford to have a child (69–71 percent) than were currently married women (52 percent). Thirty-eight percent of never-married and 26 percent of formerly married women said they were having an abortion because they did not want others to know they were having sex or had become pregnant. (Surprisingly, 10 percent of currently married women gave this reason as well.) Seventy percent of formerly married and 53 percent of never-

Table 2. Percentage of respondents offering various additional details for each of the three leading reasons women gave for having an abortion

Reason	% citing main reason
Unready for how having a baby could change her life (N=1,339)	
A baby would interfere with job, employment or career	67
A baby would interfere with school attendance	49
Children or other people depend on her for care	28
Can't afford baby now (N=856)	
Woman is student or is planning to study	41
Woman is unmarried	22
Woman is unemployed	19
Woman has low-paying job	14
Woman can't leave job	9
Woman is on welfare	7
Woman's husband or partner is unemployed	6
Woman can't afford basic needs	5
Woman receives no support from her husband or partner	4
Problems with relationship or with single parenthood (N=790)	
Woman doesn't want to marry partner	49
Couple may break up soon	32
Partner doesn't want to or can't marry	29
Woman is not in a relationship	25
Woman's husband or partner mistreats respondent or children	6
Woman is unready to commit herself to a relationship	5

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*Because the sample was not a random probability sample, standard statistical tests of significance are used here only as rough indicators. The differences discussed in the text were "significant" at a level of probability less than 0.05 percent.

married women cited relationship problems as an explanation, compared with 18 percent of currently married women. Unexpectedly, the proportions reporting that they were influenced by their partners' desire for them to have an abortion differed little between these groups, ranging from 19 percent of formerly married women to 24 percent of currently married or never-married women.

Some 77 percent of women with incomes under 100 percent or between 100 and 149 percent of the poverty level* said they were having an abortion because they could not afford to have a child, compared with 69 percent of those with incomes between 150 and 199 percent and 60 percent of those with incomes at or above 200 percent of the poverty level (not shown). In addition, women with incomes under the poverty level were more likely than those with incomes at or above 200 percent of poverty level to report that they already had all of the children they wanted (34 percent vs. 22 percent) or that they had relationship problems (57 percent vs. 48 percent); such women were also less likely than high-income women to be seeking abortion because of concern that others would find out they were pregnant (27 percent vs. 35 percent). Finally, women with incomes between 100 and 200 percent of the poverty level were less likely to say they were having an abortion because they were not ready to raise a child or because their parents wanted them to than were those with lower or higher incomes.

There also were several substantial differences by race (not shown). For example, black women were less likely (25 percent) to have elected to have an abortion in order to keep others from knowing they were having sex or had become pregnant than were whites (33 percent) and "other" women† (40 percent), and were less likely (eight percent) than whites and others (15–16 percent) to cite fetal health problems. On the other hand, white women (26 percent) were more likely than blacks or others (17–18 percent) to say that they were influenced by their partner's desire for them to have an abortion. Twenty-five percent of white patients and 30 percent of blacks said they had had enough children, compared with 20 percent of other women.

A multivariate analysis was conducted so that numerous variables could be taken into account simultaneously. Table 3 shows the results of regression analyses incorporating a wide range of personal characteristics that might affect the likelihood that a specific reason contributed to a woman's decision to have an abortion.

Table 3. Multivariate regression coefficients (unstandardized) showing association between selected independent variables and reasons for choosing to have an abortion

Independent variable	Reasons				
	Unready for change in life	Don't want sexual activity or pregnancy known	Not mature	Have enough children	Parents want abortion
<18	—	–0.091	0.315	—	0.186
≥30	—	—	–0.126	0.103	—
Unmarried	0.110	0.166	—	—	0.039
Hispanic	—	—	—	–0.079	—
Student	0.178	0.139	0.096	—	—
Employed	0.069	0.052	–0.055	—	–0.033
No children	0.094	0.121	0.269	–0.432	0.032
≥16 weeks' gestation	—	—	—	—	0.032
Catholic	—	0.077	—	—	–0.028
No religious affiliation	0.060	—	—	—	—
Covered by Medicaid	—	–0.095	—	—	—
No previous abortions	—	0.083	0.047	—	—
R^2	0.105	0.114	0.293	0.295	0.096

Note: Only coefficients significant at $p < 0.05$ and equations for which the R^2 was 10 percent or greater are shown in this table. Measures of poverty status (<100 and 100–149 percent of poverty level) and of race (black) were included in each equation, but are not shown here because they were not significant.

All variables used in these analyses are expressed as dummy variables—coded as "1" if a respondent has the characteristic and as "0" if she does not. Thus, the unstandardized coefficients shown in Table 3 can be interpreted as showing the likelihood that a woman with a given characteristic (net of all other characteristics, or independent variables, in the analysis) will report a specific reason for having an abortion. Again, standard tests of significance have been used as a rough guide, and only the regression coefficients with less than a five percent probability of occurring by chance are shown.

Regression analyses were conducted separately for each of the 13 reasons shown in Table 1, using as dependent variables both whether a woman cited a specific reason at all and whether the reason was the most important one. Results of the two analyses were similar, so Table 3 shows outcomes based on whether a specific reason was cited at all. The factors included in the analysis explained anywhere from 0.4 to 29.5 percent of the variance in the likelihood that each reason would be cited, an indication that other factors not included in the analyses had a substantial influence in determining whether a woman cited a specific reason. The results shown in Table 3 exclude equations in which less than 10 percent of the variance was explained. All regressions were run using unweighted data, since the factors used to calculate weights (race, Medicaid status and gestation) were included as independent variables in the equations.

Confirming the earlier bivariate analyses, Table 3 shows that women under 18 were 32 percent more likely than those 18 or older to have decided to obtain an abortion because they weren't mature enough to raise a child, and they were 19 percent more likely to have elected to have an abortion because their parents wanted them to do so. Women 30 and over were 10 percent more likely than those younger than 30 to have made such a decision because they did not want to have more children and 13 percent less likely to have done so because they thought they were not mature enough.

A surprising result is that women under 18 were less likely than older women to say that concern about others knowing that they were having sex or that they had become pregnant was a factor in their decision. Table 1 shows this factor to have been cited by nearly one-third of all women and by two-fifths of those under 20. However, given the negative coefficient seen in the multivariate analysis, factors other than young age must have contributed to the higher proportion observed among those under 20. This also may reflect the fact that young adolescents concerned about others knowing are underrepresented among abortion patients because they are less

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*In 1987, the federaly designated poverty level for a nonfarm family of four was $11,200. (See: *Federal Register*, **52**:5341, 1987.)

†Asian and Native American women, as well as some Hispanic women, classify themselves as "other," rather than as "black" or "white."

Table 4. Percentage of women who reported that various reasons contributed to their having a late abortion and who cited specific reasons as accounting for the longest delay

Reasons	All (N=399)	Longest delay (N=311)
Woman did not recognize that she was pregnant or misjudged gestation	71	31
Woman found it hard to make arrangements for abortion	48	27
Woman was afraid to tell her partner or parents	33	14
Woman took time to decide to have abortion	24	9
Woman waited for her relationship to change	8	4
Someone pressured woman not to have abortion	8	2
Something changed after woman became pregnant	6	1
Woman didn't know timing is important	6	*
Woman didn't know she could get an abortion	5	2
A fetal problem was diagnosed late in pregnancy	2	1
Other	11	9

*Less than 0.05 percent.

likely to confide in an adult and to receive help in arranging access to services.

Unmarried women were 17 percent more likely than currently married women to have chosen to obtain an abortion to prevent others from knowing they were having sex or had become pregnant, and were 11 percent more likely to have done so because having a child would interfere with other plans or responsibilities.

Surprisingly, race and poverty status were not significantly related to any of the reasons. Although women with an income less than 200 percent of poverty were significantly more likely to say they were having an abortion because they could not afford to raise a child, the regression explained only five percent of the variance in the range of those giving that reason.

It was expected that students would be more likely than nonstudents to be concerned about the changes a baby would bring or to feel that they lacked the necessary maturity, but students were also 14 percent more likely not to want others to find out about their sexual activity or pregnancy. Roman Catholic respondents were eight percent more likely than those with other religious beliefs to be having an abortion because they did not want others to know, and were three percent less likely to say that their parents wanted them to have an abortion.

Reasons for Delay

A multivariate regression analysis was conducted with gestation as the dependent variable (a dummy variable equal to "1" if gestation was 16 weeks or more) and patient characteristics and the reasons for abortion as independent variables. The equation explained only 9.7 percent of the variance in whether a women has an abortion at less than 16 weeks' gestation, indicating that these factors were relatively poor predictors of who has later abortions. Independently of other factors, teenagers under 18, black women, unemployed women and women covered by Medicaid were significantly more likely than others to be obtaining a later abortion; in addition, women were more likely to be having a later abortion if they were obtaining an abortion because of possible fetal health problems, if their parents wanted them to have an abortion or if their pregnancy had resulted from rape or incest. They were less likely to be having a later abortion if they were 30 or older, if they had no religious affiliation, if they were having health problems or if their husband or partner wanted them to have an abortion. However, these analyses simply indicate which women were more likely to have later abortions, without indicating why later abortions occur. This question can be explored by studying the responses of the 399 women who had abortions at 16 or more weeks' gestation and provided reasons for why they had not obtained an earlier abortion.

Of all the factors contributing to delay, one stood out: For 71 percent of all respondents who were having a later abortion, some time had passed before they had realized they were pregnant or had learned the actual gestation of their pregnancy (see Table 4). Thirty-one percent of respondents said this factor accounted for the longest segment of delay, and 20 percent said it was the only factor explaining why they did not get an abortion earlier (not shown).

Close to half of the respondents said that they had been delayed because they had found it difficult to make arrangements for the abortion, and 27 percent said this had contributed most to their delay. In fact, some 45 percent of women having abortions at 16 or more weeks' gestation had tried to get an abortion from another provider, compared with only five percent of those obtaining earlier abortions (not shown). Only five percent of women reported that they had not known they could get an abortion.

One-third of all women having a later abortion said that they had not had it earlier because they were afraid to tell their partner or their parents; 63 percent of minors who were having later abortions cited this reason for delay (not shown). Even though no participating facilities performing abortions at 16 or more weeks' gestation required parental consent or notification, some younger women may have come from states with such requirements or may have sought services from a provider with such requirements.[12] Fifteen percent of all women under age 18 having a later abortion said they had not had it earlier because of the time taken to notify or get consent from their parents (not shown). About one-quarter of women having a later abortion said their delay was attributable (at least in part) to the long time they had needed to make the abortion decision.

More detailed information on specific reasons for delay was requested for three of the reasons given; the responses are shown in Table 5. Nearly all (99 percent) of those who attributed their delay to problems in recognizing that they were pregnant provided more detailed responses. Half said that they had not felt any physical changes, such as morning sickness or breast tenderness, and half indicated that they had been hoping they were not pregnant and would get their period; these reasons each represented more than a third of all women having later abortions (not shown). One-third did not know they had missed a period because their periods were irregular, and almost as many (32 percent) believed they had had a period. Others had suspected or known they were pregnant, but had received inaccurate or misleading information: One in five said that a doctor had misjudged the duration of the pregnancy, and one in 10 claimed that a pregnancy test had indicated they were not pregnant.

Ninety-eight percent of those who had delayed because of problems in making arrangements gave more detailed information. Some 60 percent said they had needed time to raise money; such women represented 29 percent of all later abortion patients (not shown). About one-third said they had been delayed because the first provider or providers they had contacted did not offer the needed services. The study did not question the women as to the specific reasons these providers could not help them (e.g., the providers did not offer abortion services, did not provide them at the relevant gestation, cost too much or put other restrictions on whom they would serve). More than one-quarter said they could not find a provider nearby and had had to arrange transportation to a provider in another area; 20 percent said they had been delayed because they had not known where to get an abortion.

Of the respondents delayed because of the time it took them to make the decision, 78 percent gave more detailed information. Of these, 78 percent volunteered that deciding whether to have an abortion had been difficult, 19 percent specifically mentioned religious or moral reasons and 11 percent said that their decision-making was lengthy because they had included their parents or their husband or partner.

Multivariate regression analyses using the social and demographic characteristics of respondents and the reasons they were having abortions were conducted to explore the reasons that might account for delay. As with the regressions reported above, all measures were expressed as dummy variables, and the data were unweighted. Only results with a minimum explained variance of 10 percent and regression coefficients with less than a five percent likelihood of occurring by chance are discussed here.

Independently of other sociodemographic characteristics and of reasons for having an abortion, respondents under age 18 were 39 percent more likely than those 18 or older to say they had delayed because they were afraid to tell their parents or their partner about the pregnancy; women covered by Medicaid were 17 percent less likely than those not covered to have delayed for this reason. Not surprisingly, respondents whose pregnancies had resulted from rape or incest were 35 percent more likely to have delayed because they were afraid to tell others than were those whose pregnancies had not. In addition, women who did not want others to know about their sexual activity or pregnancy and those who had relationship problems were more likely (13 percent and 11 percent, respectively) to have delayed because they were afraid to tell others. It is somewhat unexpected, however, that delay associated with the fear of telling others was 17 percent more common among young women whose parents wanted them to have an abortion; this finding may indicate that they delayed telling their parents because they themselves either were undecided or did not want to have an abortion but believed their parents would pressure them to do so. Delay associated with fear of telling others was 14 percent more common among those saying they were not mature enough to raise a child.

Those who reported that relationship problems or pressure from their husband or partner had contributed to their abortion decision were significantly more likely to have delayed obtaining an abortion because they hoped their relationship would change (11 percent and 10 percent more likely, respectively), while students were nine percent more likely to cite this factor. Similarly, women 30 or older or those seeking an abortion because of fetal health problems were more likely than younger women or those with no such problems to have attributed delay to late diagnosis of a fetal defect (nine percent and six percent, respectively), and women citing this reason were less likely to be having an abortion because they felt worried about the changes they would face in having a baby or because of relationship problems (six percent and three percent, respectively).

Discussion

The women who participated in this study obtained abortions for a myriad of reasons that do not fit into simple patterns. Primarily, these reasons show concern about the effects of having a child at that time; they do not indicate that these women want no more children at all. However, perhaps the most striking finding from this study is not that subgroups of women choosing abortion have a wide variety of reasons for doing so, but that most individual women have several reasons. Ninety-three percent of respondents cited more than one reason for having decided to have an abortion, and on average they reported almost four. On average, women having abortions at 16 or more weeks' gestation reported that more than two factors had contributed to their delay. The multiplicity of reasons for choosing to have an abortion suggests that even if one specific problem is solved, it will not be enough to change most women's decision. It is also striking that social and demographic variables explained such small proportions of the variance in the reasons for abortion, indicating that other unmeasured, perhaps idiosyncratic, factors played an important role. This suggests that actions directed toward helping women who are unintentionally pregnant avoid abortion would be most effective if tailored to the individual.

Five of the six factors most commonly cited as reasons for having decided to obtain an abortion—feeling concerned about the impact that having a child would have on their lives, being unable to afford a baby, not wanting to be a single parent or having relationship problems, not being ready for the responsibility of raising a child, and not being mature enough to raise a child—reflected the high proportion of women who had unintended pregnancies when they were young, unmarried or trying to delay childbearing.

The findings of this research indicate the difficulties many women face in delaying childbearing until they feel able to care for a baby and are in a relationship that they believe will last. Having a baby and raising a family can be an expensive proposition.[13] Many young, unmarried or poor women are not covered for the costs of even prenatal care and delivery.[14] Maintaining an adequate standard of living increasingly requires that women work, and to do so they must have an adequate education. Both aims can be threatened by an accidental pregnancy, not just among young, unmarried women, but among older, married women as well: About three-quarters of abortion patients aged 20–29 and more than two-thirds of those 30 and older said that having a child would interfere with various responsibilities, and 58–70 percent of those 20 and older said they could not afford a baby now.

The proportion of women who reported that they had decided to seek an abortion because they did not want others to know

Table 5. Among women who provided additional information relating to three specific reasons for having abortions at 16 or more weeks' gestation, percentage who gave various detailed reasons for delay

Reason	%
Woman failed to recognize pregnancy or misjudged gestation (N=277)	
She didn't feel physical changes	50
She hoped she was not pregnant	50
She had irregular periods	33
She thought she had had her period	32
Her MD underestimated gestation	20
She was practicing contraception	20
Her pregnancy test was negative	9
She didn't know where or how to get a pregnancy test	7
Woman found it hard to make arrangements for an abortion (N=185)	
She needed time to raise money	60
She tried to get an abortion from a different clinic or MD	32
She had to arrange transportation because there was no nearby provider	26
She didn't know where to get an abortion	20
She couldn't get an earlier appointment	16
She took time to notify her parents or get their consent	11
She needed child care or a Medicaid card	9
She needed time to obtain court permission	0
Woman took time to decide to have an abortion (N=74)	
She found having an abortion to be a difficult decision	78
She had religious or moral reasons for waiting	19
She talked with her parents/husband/partner	11

they were sexually active or had become pregnant is surprising; this finding may reflect the degree of ambivalence about sexuality in the United States, as well as the continued societal disapproval of young and unmarried women who become pregnant and have children. Yet, although adolescents and unmarried women were more likely to have cited this reason, two in 10 women 25 and older and some married women did so as well. Such responses may represent communication problems with partners or disagreements between spouses or partners over whether to have a child or what type of relationship to have. Many of these respondents were unmarried and had relationship problems; it is not clear, however, how many of these women were generally embarrassed to have become pregnant or feared displeasure (or even harm) from family, partners or employers. Especially for the youngest women, such concerns result in a delay in obtaining an abortion, which probably increases both the difficulty of getting an abortion and its cost, as well as the risk of complications. About one-third of those having an abortion at 16 or more weeks' gestation—and as many as 63 percent of those under age 18 having a later abortion—attributed the delay to their reluctance to reveal that they were pregnant.

Concern about the reactions of partners or parents is also reflected in the proportion saying that others' wishes figured in their decision. More than one in five women chose to have an abortion at least in part because their husband or partner wanted them to. Almost one-quarter of married women said they had been influenced by their husband's desire for them to have an abortion, and more than one-quarter of those under age 18 were influenced by their parents' wishes.

Women's reasons for having an abortion and for delay indicate the degree to which unexpected events can intervene: Seven percent of women in this study decided to have an abortion because of a personal health problem, and 13 percent did so because of possible fetal health problems. Six percent of women having a later abortion said they delayed because something in their lives had changed after they became pregnant—for example, a relationship had ended or a job had been lost.

In their reasons for deciding to terminate a pregnancy, women having a later abortion were more likely than others to cite factors over which they had little control, such as their own health or that of the fetus, or experience with rape or incest. Those who had delayed were somewhat more likely to be having an abortion because their parents wanted them to, and less likely to be doing so because their husband or partner wanted them to. Most of those who had delayed said the chief reason was that they had not recognized that they were pregnant early enough. Smaller proportions got faulty results from a pregnancy test or received inaccurate information from a physician. Although some might have avoided delay if they had had better knowledge of their bodies and the signs of pregnancy, delay may have been unavoidable for many, especially for those who delayed because they needed time to make the decision. Almost half of the women having later abortions, however, were delayed because of problems in obtaining abortion services. Many could not immediately afford the cost or had problems either finding or getting to a provider who would serve them.

Findings from this survey indicate that eliminating (or even substantially reducing the number of) abortions once women have become unintentionally pregnant will be very difficult, if not impossible, because the reasons women turn to abortion are so numerous and varied. The level of unintended pregnancy is in part a reflection of poor contraceptive practice among American women.[15] About half of all unintended pregnancies occur among women who become pregnant despite use of a contraceptive method, either because of inconsistent or incorrect use or because of method failure.[16] The number of unintended pregnancies and abortions could be lessened if these women were helped to practice contraception more effectively, either by changing from less-effective methods to those with lower failure rates or by improving their use of less-effective methods. Nonetheless, as is described elsewere in this issue (Henshaw and Silverman, p. 158), a number of abortion patients do not use any contraceptive method around the time of conception. While education and discussion focused on the real health risks and benefits of using and not using contraceptives could help such women avoid unintended pregnancy; some who do not use any method may only be helped if new methods of contraception are developed and made available.

One recent study shows that women's attitudes toward oral contraceptives and the condom are becoming more favorable, and that reliance on these methods has been increasing.[17] Nevertheless, these changes are slower and smaller than what is needed if levels of unintended pregnancy and abortion are to be substantially reduced. The research reported in this article indicates that preventing a large proportion of abortions among women with unintended pregnancies will be a difficult and complex task. Experience from other countries has shown that lower abortion rates can be achieved through improved contraceptive use, even with continued ready accessibility of abortion services.[18]

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DIGEST

Timing of Sterilization After Last Wanted Birth Differs by Parity, Education, Religion and Region

About one-quarter of U.S. couples who have reached their desired family size decide to rely on sterilization within a year of their last wanted birth, but there are substantial differences in the timing of sterilization among various subgroups of the population, according to Larry Bumpass, a demographer at the University of Wisconsin. Among factors having the largest effect on the decision to undergo sterilization soon after the last wanted birth are parity, wife's educational level, religion, region of the country and previous method of contraception.

Using data from the 1976 and 1982 National Surveys of Family Growth (NSFG), Bumpass analyzed the timing of sterilization after women reach their desired family size. To eliminate the problems of bias and small sample size, he restricted the analysis to parous women who were white, younger than 45 and in their first marriage and who had had their last wanted birth within 12 years of the survey date and before age 33.

The most common timing pattern, followed by almost one-quarter of the sample, was for one or the other partner to undergo sterilization within one year of the last wanted birth. A higher percentage of first-year sterilizations were female than male (perhaps because female sterilization is often a postpartum procedure), but the difference was not large (13 vs. 10 percent). Each year thereafter, 7–8 percent of the remaining couples selected sterilization as their method of contraception.

To examine changes in factors that affected the selection of sterilization over other contraceptive methods, Bumpass compared the 1976 survey data with those collected in 1982, confining the analysis to couples who had had at least four years' exposure to the risk of an unwanted pregnancy since their last wanted birth and looking only at what had happened within those four years. A multinomial logit analysis was then used to determine the effect of each variable studied, independent of all others, on the proportion of couples choosing sterilization and on the type of procedure (male or female) selected. The latter analysis was confined to couples in the 1982 NSFG who had experienced at least four years of exposure to the risk of an unwanted pregnancy. Overall, 41 percent of the couples from the 1982 NSFG who had completed their desired family size were relying on sterilization within four years of their last wanted birth.

Compared independently with the use of all other methods, male and female sterilization were each significantly more likely to be the method of choice among couples in both samples. However, the 1976 data indicated that couples who had adopted sterilization were more likely to have selected vasectomy than they were to have chosen female sterilization; by 1982, male procedures were significantly less likely to have been the procedure of choice. Of the 38 percent of the couples who had turned to sterilization within four years of a birth occurring during 1970–1973, 16 percent had selected female sterilization and 22 percent, male sterilization. Of the 51 percent of couples who had turned to sterilization within four years of a birth that occurred in 1974–1978, 27 percent had selected female sterilization and 24 percent, had chosen vasectomy. This pattern did not change substantially when the data were adjusted for changes in the sample represented by the other variables analyzed.

Both the 1976 and 1982 data showed that higher parity increased the likelihood that female and male sterilization would be chosen over other methods of contraception, although for male sterilization, the difference in 1982 was significant only at parities of three or more. In the later time period, higher parity couples were significantly less likely to have chosen male sterilization than to have selected female sterilization. As an indication of the correlation between parity and sterilization, there were large differences by parity in the proportions of couples who had turned to sterilization, after the 1982 data were adjusted for the effects of the other variables: Twenty percent of couples who had wanted only one child were relying on sterilization within four years of the last wanted birth, compared with 47 percent of those who had wanted two children and 60 percent of those who had wanted three or more children. The analysis also found that male sterilization was more than twice as likely as female sterilization to have been chosen if the couple had wanted only one child (14 percent and six percent, respectively); there was little difference among couples who wanted two children, but female sterilization was more likely than male sterilization to have been chosen by couples who wanted three or more children (33 percent compared with 27 percent).

As would be expected, the actual proportion of couples who were relying on sterilization within four years since their last wanted birth increased with the woman's age at the time of that birth. However, other variables—parity, in particular—are correlated with age, and when the data were adjusted for the other variables, age had a minimal independent role.

By 1982, couples married 5–9 years and those married 10 or more years were more likely than those married less than five years to have selected either male or female sterilization over other contraceptive methods; however, the difference was significant only for those married 5–9 years. When the data were adjusted for the effects of other variables, they revealed that 32 percent of couples married less than five years at the time of their last wanted birth had turned to sterilization within four years, compared with 57 percent of those

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married 5–9 years and 49 percent of those married 10 or more years. Duration of marriage made no significant difference in whether couples selected male or female sterilization.

In the 1976 NSFG, couples in which the wife had at least 12 years of education were less likely than those in which the wife had less than 12 years of education to have chosen sterilization over other contraceptive methods; the difference was significant only for female sterilization, however. By 1982, the relationship between the wife's educational level and the selection of sterilization had reversed; couples in which the wife had at least 12 years of education were more likely than those in which the wife had less education to have selected male or female sterilization over other methods of contraception. The difference was especially marked among college-educated women, who were significantly more likely to have selected female sterilization over other methods of contraception. The adjusted proportions of couples who had turned to sterilization by four years since the last wanted birth were 24 percent if the wife had less than a high school education, 44 percent if she had 12 years of education and 52 percent if she had some college education. In 1976, couples in which the wife had at least 12 years of education were significantly more likely to choose vasectomy over female sterilization, if sterilization was their contraceptive choice. In 1982, this trend had also reversed, but the tendancy to choose female sterilization was not significant. In both time periods, there was a significant positive relationship between the husband's educational level and the selection of vasectomy over other contraceptive methods.

The survey data indicate that religion had more of an influence on the sterilization decision in 1982 than in 1976. In 1976, there were no significant differences by religion; in 1982, couples in which both partners were Catholic were significantly less likely than non-Catholic couples to have chosen either female or male sterilization over other methods. This difference was also seen for female sterilization when only one partner was Catholic. When the data were adjusted for the effects of the other variables, about one-third of couples in which one or both partners were Catholic were found to have been relying on sterilization within four years of the last wanted birth, compared with half of couples in which neither partner was Catholic. In addition, vasectomy was twice as likely as female sterilization to have been chosen if only one partner was Catholic, slightly more likely if both partners were Catholic, and just as likely if neither were Catholic.

Region of the country had an effect on the sterilization decision, after the effects of other variables were controlled for. In 1976, residents of the Northeast, the North Central and the West were less likely than residents of the South to have chosen female sterilization over other methods; this tendency continued in 1982, reaching statistical significance in the Northeast and West. In both time periods, vasectomy was significantly less likely to have been chosen over other methods of contraception in the Northeast; it was significantly more likely to be chosen in the West in 1976, but by 1982, this tendency was no longer significant. After the 1982 proportions were adjusted for the effects of the other variables, couples in the South were shown to have been almost twice as likely as couples in the Northeast to have selected sterilization (58 percent compared with 31 percent) and were also more likely than those in the North Central and the West to have chosen sterilization (44 percent in both regions). Sterilizations were evenly divided between male and female procedures in the North Central and South, were slightly more likely to be female procedures in the Northeast and were almost three times as likely to be vasectomies in the West.

The 1976 data indicated that residents of central cities were not significantly more likely than residents of other areas to have chosen sterilization over other methods of contraception; in 1982, they were significantly less likely to have chosen female sterilization over other methods. Among couples who had turned to sterilization, residents of central cities were twice as likely to have selected male sterilization as female sterilization, whereas residents of other areas had selected one procedure as often as the other.

Couples who had experienced an unplanned pregnancy before their last wanted birth were more likely than those who had not to have chosen sterilization as a method of contraception, but the tendency was significant only for female sterilization in 1976 and for male sterilization in 1982. Overall, the adjusted proportion of couples relying on sterilization within four years of the last wanted birth was 51 percent among those who had experienced an unplanned pregnancy and 40 percent among those who had not. Couples who had experienced an unplanned pregnancy were not significantly more likely than those who had not to have selected one type of procedure over the other. Bumpass notes that the effect of an unwanted birth is stronger: Seventy percent of couples who had experienced an unwanted birth had selected sterilization within four years of that birth.

Couples who had used no contraceptive method during the interval of exposure before their last wanted birth and those who had discontinued use of the pill or the IUD at some point during that interval because they had trouble using those methods were significantly more likely than users of coitus-related methods to have turned to sterilization within four years of the last wanted birth (adjusted proportions of 67 percent, 61 percent and 34 percent, respectively). Couples who had relied on the pill or the IUD before their last wanted birth were only slightly more likely than users of coitus-related methods to have turned to sterilization (39 percent). The contraceptive method that couples had used during the interval before their last wanted birth did not appear to influence the type of sterilization procedure selected; about half in each group selected male sterilization and half selected female sterilization.

An examination of 1982 data found that 25 percent of ever-married women aged 30–44 had reached their intended family size by age 25, 50 percent by age 27 and 75 percent by age 30. The average married woman, therefore, has at least 15 reproductive years remaining after the birth of her last wanted child. "The probability of at least one [contraceptive] failure before menopause is nontrivial for women who use the pill or IUD, and is quite substantial for those who use other methods," notes Bumpass, adding that the difficulty of avoiding pregnancy over such a long period of time is key to the large growth in the use of sterilization as a method of birth control since 1970. He concludes that continued acceptance of sterilization since these data were collected is likely to mean further reductions in the interval between a couple's last wanted birth and their decision to obtain sterilization.

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Differences by Race In Contraceptive Choice Have Complex Origins

Racial patterns of contraceptive choice are extremely complex and depend on a woman's age, education, marital status and parity. White currently married women are more likely to use coitus-dependent methods and less likely to use no method than are black currently married women. Among previously married women, however, these differences are often reversed. Furthermore, according to a recent study of nationally representative data, racial patterns of contraceptive choice have changed over time.[1]

The researchers used data on ever-married black women and non-Hispanic white women interviewed in the 1976 and 1982 cycles of the National Survey of Family Growth (NSFG). (They did not use data for never-married women because the 1976 NSFG did not include them unless they had already given birth.) Because the researchers wished to examine current contraceptive choice only among women exposed to the risk of pregnancy, they excluded from the analysis women who had been sterilized, or whose partners had been, as well as pregnant women and those seeking pregnancy. The proportion of women eliminated from the analysis because they had been sterilized increased between 1976 and 1982: Among whites, 20 percent and 27 percent, respectively, had been contraceptively sterilized, and among blacks, the comparable figures were 14 percent and 24 percent, respectively. In addition, in both years, 11 percent of whites and 13 percent of blacks were noncontraceptively sterilized. The proportion of women who were pregnant or seeking pregnancy did not vary much by year—it was 11 percent among whites in both years and 11–12 percent among blacks.

On the basis of the effectiveness of the contraceptive method used and its independence of coitus, the remaining women were divided into three categories: users of the pill or IUD, users of coitus-related methods and nonusers. The proportion of women in the pill and IUD category declined between the two years: While 29 percent of white and 29 percent of black ever-married women used these methods in 1976, the figures were 20 percent and 22 percent, respectively, in 1982. The proportion using coitus-related methods increased from 18 percent to 21 percent among whites and remained about the same—11 percent vs. 12 percent—among blacks. The proportion of nonusers declined from 11 percent to nine percent among whites and from 20 percent to 16 percent among blacks.

To examine the determinants of contraceptive choice, the researchers performed a multivariate analysis that tested, in addition to race, marital status (currently married vs. widowed, separated or divorced), parity, age, metropolitan residence, region, employment status, education and religion. Four of these—region, metropolitan residence, religion and employment status—proved not to have significant interactions with race; the remainder of the analysis of contraceptive choice therefore centered on examining the interactions of race with marital status, parity, age and education.

Racial Differences

One of the most striking racial differences in patterns of contraceptive use is that white currently married women were found to be far more likely to use coitus-dependent methods than were black currently married women. This was true in both 1976 and 1982 regardless of the women's age (the ages analyzed were 25, 30, 35 and 40), educational level (10, 12, 14 and 16 years of schooling) and parity (no children, one or more children). In general, the opposite was true among women who were widows, or were separated or divorced. Black women in this category were more likely than their white counterparts to use coital methods. However, the differences between the two racial groups were not as large as those for currently married women.

The analysis also found that currently married black women were more likely than their white counterparts to be nonusers of contraceptives. This pattern held for all comparisons by age, educational level, parity and year. The differences were greatest for childless women and smallest for college-educated women with children. The finding of higher nonuse among black women also applied to the 1976 data for women who were widows, or were separated or divorced and were younger than 40, but by 1982, white women in this marital category were more likely than their black counterparts not to be using any contraceptive method.

A third racial pattern the researchers noted was a change between 1976 and 1982 in the type of contraceptive chosen. In 1976, both currently and previously married white women were more likely than their black counterparts to be using the pill or IUD. However, by 1982, the differential had disappeared at most ages, educational levels and parities; indeed, in many instances, blacks were now more likely than whites to be using these methods. White women aged 40 and currently married childless women with 10 or 12 years of education were the only ones still more likely than blacks to be using the pill and IUD.

The researchers believe that because contraceptive use is one of the most crucial determinants of fertility in the United States, much of the differential in fertility that remains between blacks and whites may be due to differences in contraceptive practice. However, their study shows that no simple statement suffices to describe the effect of race on contraceptive choice. The results indicate that black women and white women of similar education, age, parity and marital status make different contraceptive decisions. The researchers point to known differences in marital formation and other family influences as possible reasons; for example, the average length of time before remarriage after a marital dissolution is considerably longer for blacks than for whites, childbearing begins earlier and terminates later for blacks, and black males are less likely than white males to undergo sterilization. In addition, the researchers speculate that black women may be more likely than white women to believe they are subfecund, and thus might be less likely to see contraception as necessary for preventing pregnancy.

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Pregnancy Rates, Mostly Down After 1980 Peak, Rise Slightly in 1985

After peaking in 1980, pregnancy rates among American women aged 15–44 declined by four percent between 1980 and 1984, and then rose slightly between 1984 and 1985, according to an analysis of the latest figures compiled by three researchers at the National Center for Health Statistics (NCHS).[1] The 1980–1983 decline was primarily due to a drop in the pregnancy rate among women in their 20s; the rate among teenagers remained constant, while that among women in their 30s increased somewhat. Pregnancy rates for nonwhites were substantially higher than those for whites.

The investigators estimated the numbers and rates of pregnancies and pregnancy outcomes through 1985, but they were able to estimate age- and race-specific rates through 1983 only. The data show that the pregnancy rate rose throughout the latter half of the 1970s, to a peak of 111.9 pregnancies per 1,000 women aged 15–44 in 1980, after which the rate decreased annually, falling to a low of 107.3 in 1984. In 1985, the pregnancy rate increased again, to 108.2 per 1,000. However, the total annual number of pregnancies increased steadily between 1976 and 1985, mainly because of an increase in the number of women of childbearing age.

The birthrate followed the same pattern as the pregnancy rate: Between 1976 and 1980, it rose from 65.0 live births per 1,000 women to 68.4, then declined to a low of 65.4 in 1984, and subsequently rose to 66.2 in 1985. The induced abortion rate, which had peaked at 29.4 in 1980, declined slightly but steadily after that year, to a low of 28.0 in 1985.

Between 1976 and 1980, pregnancy rates among women in their 20s (who account for about 60 percent of all pregnancies) increased by about 10 percent, birthrates rose by about five percent, and abortion rates climbed by 30 percent. However, between 1980 and 1983, pregnancy rates among these women dropped by over three percent (from 183.6 pregnancies to 175.4 per 1,000 20–24-year-olds, and from 165.7 to 160.8 per 1,000 25–29-year-olds). This change was reflected in declines in the birthrate, which fell by about five percent; abortion rates among women in their 20s remained basically unchanged during the 1980–1983 period.

Among teenagers aged 15–19, the pregnancy rate rose by eight percent between 1976 and 1980, from 101.4 pregnancies per 1,000 women to 110.0. During that period, the induced abortion rate among teenagers rose from 34.3 to 42.7, while the birthrate remained stable. Between 1980 and 1983, the teenage pregnancy rate, birthrate and abortion rate changed little. Nevertheless, the number of teenage pregnancies declined by 10 percent between 1980 and 1983, reflecting a comparable decline in the number of teenagers during that period.

In contrast to their younger counterparts, whose pregnancy rates peaked in 1980, women in their 30s continued to experience a steady increase in pregnancy rates between 1980 and 1983. Over the period 1976–1983, the birthrate for women aged 30–34 rose from 53.6 per 1,000 to 64.6, while that for women aged 35–39 increased from 19.0 to 22.1. During the same seven-year period, abortion rates among women in their 30s rose as well. In 1983, the proportion of pregnancies ending in fetal loss was highest (20 percent) among women aged 35–39.

Whereas the pregnancy rate in 1976 for nonwhite women was 81 percent higher than that for white women, the difference was 68 percent in 1983 (97.4 pregnancies per 1,000 for whites vs. 163.6 for nonwhites). Racial differences in pregnancy rates remained substantial for every age-group, and were particularly wide for women under age 15 (1.8 for whites vs. 10.1 for nonwhites) and women aged 35 and older (34.5 vs. 70.5). Racial differences in birthrates were also evident, but were substantially smaller than the differences in pregnancy rates. Rates of induced abortion were more than two times greater among nonwhites than among whites (55.5 vs. 23.3), and the racial differential tended to increase with advancing age up to the 30–34 age-group, after which the differential lessened slightly.

The data show little difference in pregnancy outcome between white and nonwhite teenagers: Forty-seven percent of all pregnancies among both white and nonwhite 15–19-year-olds resulted in live births, 40 percent ended in induced abortion and 13 percent ended in fetal loss. In contrast, among women 20 and older, white women were much more likely than nonwhite women to have a live birth and were less likely to have an induced abortion or to experience fetal loss.

Commenting on their data, the investigators observe that the continued increase in birthrates among women in their 30s probably reflects their intentional postponement of childbearing for educational or vocational reasons. The researchers note that because the teenage population has declined steadily in recent years, the public may be led to believe that the problem of teenage pregnancy is abating; however, they caution, pregnancy rates, birthrates and abortion rates among teenagers have not changed substantially since 1980.

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Gallup Poll Shows More Americans Say Premarital Sex Is Wrong, Reversing Trend of Last 20 Years

The trend in the United States toward acceptance of premarital sex may be reversing—a 1987 Gallup poll shows that the percentage of Americans who think that premarital intercourse is wrong has increased since 1985.[1] Although public opinion about the acceptability of having sex before marriage is almost evenly divided, women and older adults are more inclined than men and younger adults to disapprove of premarital sex; Southerners are more likely to disapprove than are other Americans. There is virtually no difference in disapproval by race. Four in five people who oppose sex before marriage cite moral and religious grounds for their view.

In 1987, the Gallup Organization asked 1,607 adults the question, "Do you think it is wrong for a man and a woman to have sexual relations before marriage, or not?" Findings from the 1987 poll show that 46 percent of Americans think it is wrong to have sex before marriage, 48 percent think it is not wrong and the remainder have no opinion. Forty-five percent of men disapprove of premarital sex, compared with 59 percent of women.

Dramatic differentials are evident by age, education, region, religion, occupation and income: Twenty-seven percent of 18–29-year-olds oppose premarital sex, compared with 65 percent of those older than 50; 60 percent of respondents with less than a high school education disapprove, whereas 45 percent of those with a high school education and 37 percent of those with a college education disapprove. Fewer than half of residents in the Midwest and in both coastal regions object to sex before marriage, but 61 percent of Southerners feel this way. Protestants are more likely than Catholics to oppose premarital sex—52 percent and 39 percent, respectively, do not consider it acceptable. Seventy percent of those who identify themselves as Evangelicals think premarital sex is wrong. Blue-collar workers are more likely than any other occupational group to oppose sex before marriage, with 45 percent believing it to be wrong. The proportion disapproving of premarital sex appears to decrease with increasing household income—56 percent of the people living in households with incomes of less than $15,000 consider such behavior wrong, compared with 38 percent of those with household incomes of $40,000 or more.

Eighty-three percent of Americans who disapprove of premarital sex do so because of moral or religious reasons; men and women, whites and nonwhites, and Protestants and Catholics cited such reasons in virtually equal proportions. College-educated people, however, are more likely than those with less than a high school education to cite moral and religious reasons (89 percent vs. 81 percent). In addition, only 34 percent of people from families with incomes under $15,000 mention moral and religious reasons, but 78–86 percent of people with greater family incomes cite it. Ninety-one percent of those who identify themselves as Evangelicals cite moral and religious reasons, compared with 77 percent of non-Evangelicals. The second most frequently cited reason for opposing premarital sex, mentioned by one of every five persons who disapprove, is the risk of sexually transmitted disease. The investigators suggest that this may be a key factor in the reversal of the trend toward approval. People between the ages of 18 and 49 are twice as likely as those 50 or older to cite disease; residents of the Midwest are less likely than residents of any other region of the country to mention it. Professionals and people in business cite disease half as often as do other white-collar workers. The next most common responses were the risk of pregnancy (13 percent) and the belief that women should be virgins before marriage (nine percent).

Comparison of the 1987 figures with those for other years shows that Americans' attitudes toward premarital sex have undergone a remarkable change since 1969. In that year, 68 percent of Americans thought premarital sex was wrong, but by 1985, 39 percent thought so. Declines were similar among younger and older people, and among men and women, but were much steeper among Catholics than among Protestants.

Between 1985 and 1987, the proportion of people who opposed sex before marriage increased seven percentage points, the first reversal since 1969. The proportion who thought premarital sex was wrong increased by 6–9 percentage points among those 30 and older, and increased nine percentage points among 18–29-years-olds. The proportion of college-educated Americans disapproving of sex before marriage increased nine percentage points, and the proportion of high school–educated Americans disapproving increased two percentage points; among those with a grade school education there was no change. Finally, the proportion of people who considered premarital sex wrong decreased in the Midwest, the South and the West (by six, 13 and 16 percentage points, respectively), but continued to increase in the East (by three percentage points).

From the results of their latest poll, the Gallup analysts conclude that there is "evidence that the sexual revolution of the last quarter-century may be coming to a halt" and that the "dramatic trend since 1969 toward the acceptance of premarital sex" has indeed experienced a reversal in recent years.

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Half of All Preschoolers In U.S. Need Special Child-Care Arrangements

Young children today are seven times more likely to live in families where both parents work outside the home, and four times more likely to live with only one parent, than were their counterparts in 1940. As the proportion of children living in "nontraditional" families increases, so does the need for special child-care arrangements: Half, or 11.2 million, of all American preschool-age children are now living in families where no parent is available to care for them full time. These are the highlights of a study that examines trends in family composition, parents' work status and arrangements for the care of young children over the last five decades.[1]

The analysis is based on data from each of the five censuses carried out between 1940 and 1980, and on estimates derived from the 1987 Current Population Survey. The study is part of a much larger project, the 1980 Census Monograph on Children, which will analyze in detail the changing social, demographic and economic circumstances in which children lived during the period from 1940 to 1980.

Between 1940 and 1987, the proportion of children five or younger who were living with two parents declined from 90 percent to 73 percent. During the same period, the proportion of young children living with one parent only (usually the mother) increased from five percent to 22 percent. The proportion of children living with neither parent has, however, remained within the narrow range of 3–5 percent since 1940.

In 1940, 92 percent of young children living in two-parent families were in "traditional" households—their father was in the labor force and their mother remained at home and was available for full-time child care. Six percent had both parents working outside the home. By 1987, however, 52 percent of children five or younger living in two-parent families, or just 38 percent of all children in that age-group, were living in traditional families. Forty-five percent of preschool-age children living with both parents, or 33 percent of all preschool-age children, had both parents in the labor force.

Among children living with one parent only, the proportion whose parent worked outside the home has remained in the range of 45–55 percent since 1940. In 1987, 12 percent of all young children were living with a single parent who worked outside the home, and 10 percent were living with a single parent who remained at home. (About three percent of all young children in 1987 were living in families where the father was not working outside the home and the mother worked part time.)

The data show that in 1980, only four percent of young children who were living with two working parents had an additional adult relative who was available to provide substantial child care, compared with 20 percent in 1940. Among children living in single-parent families with a working parent, only 22 percent were living with an additional nonparental caretaker in 1980, compared with 55 percent in 1940.

According to the investigators, additional increases in single-parent families and in mothers' labor-force participation are likely to occur in the future. Consequently, they predict, the proportion of young children in need of special child-care arrangements will continue to rise, perhaps considerably, above current levels.

Reference

1. D. J. Hernandez and D. E. Myers, "Family Composition, Parents' Work, and The Need for Child Care Among Preschool Children," paper presented at the annual meeting of the Population Association of America, New Orleans, Apr. 21–23, 1988.

The Baltimore Pregnancy Prevention Program for Urban Teenagers

I. How Did It Work?

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Summary

Two teams, each consisting of a social worker and a nurse, delivered the bulk of services in an experimental pregnancy prevention program for junior and senior high school students that combined school and clinic components. In-school components were classroom presentations, informal discussion groups and individual counseling; clinic services consisted of group education, individual counseling and reproductive health care. Eighty-five percent of the total student enrollment had contact with at least one component of the program. More males than females were among the 15 percent with no contact. When estimates of chronic absenteeism are taken into account, the program is believed to have reached all students in regular attendance.

Approximately 22 percent of staff-student contacts occurred in the classroom, and the remaining 78 percent were voluntary on the part of the student. About 68 percent of contacts occurred within the school, with small group discussions especially popular—they represented 41 percent of all contacts. The proportion of contacts that occurred in the clinic was highest among senior high females (46 percent) and lowest among senior high males (12 percent).

The mean number of staff encounters per male student is about one-half the number of females. But even senior high males, the group least likely to utilize clinic services, seek out small-group sessions in the school.

Introduction

Creative programs for the prevention of adolescent pregnancy and childbearing have proliferated in the United States in response to what is generally perceived as a high pregnancy rate among unmarried teenagers. Even though there is more to be learned about adolescent risk-taking behavior, the feeling is abroad that enough is known to begin working on pregnancy prevention measures.[1] Because few programs have been evaluated, there is little information on which to base the choice of models to replicate, and even less information with which to estimate the costs of replication.

In a previous issue of *Perspectives*, we reported on a school pregnancy prevention program that combined educational and medical intervention. The article showed the effects of the program on the attitudes, knowledge and behavior of a junior and senior high school population in Baltimore.[2] During the program's existence, pregnancy rates declined 30 percent in the program schools, while rising 58 percent in control schools; in addition, a delay was documented in the onset of coital activity among young women attending program schools. This, the first of two articles published in the current issue, provides a detailed description of the services delivered by that program and the students' overall utilization of those services; it does not explore the relationship between individual patterns of utilization and individual outcomes, but attempts to give a sense of what was done by the staff to bring about the collective results. The first article lays the groundwork for the second, which is an accounting of program expenditures and the costs of specific services.

The privately funded demonstration project known as the Self Center program ran for approximately three years, and was a cooperative venture of The Johns Hopkins University School of Medicine and the Baltimore City Departments of Education and of Health. The program served a junior and a senior high school with enrollments of approximately 700 and 1,000 students, respectively; they were located a few blocks apart in an inner city neighborhood characterized by public and low-cost housing. The program's services consisted of classroom presentations, educational and counseling services provided in health suites in each of the two schools, and educational, counseling and medical services provided in a storefront clinic. The clinic, located across the street from the senior high school, was open only to students from the two program schools. The overall project combined service and research (two other schools were used as controls in evaluating the program), and it succeeded in achieving many of its objectives:[3] to raise the level of student knowledge regarding reproductive biology and pregnancy, to postpone onset of intercourse where possible, to increase the level of clinic attendance and contraceptive use

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among the sexually active, and to reduce the risk of pregnancy.

Each of the two program schools was assigned a Self Center team, consisting of a social worker and nurse-midwife or pediatric nurse practitioner who were experienced with and had a special interest in adolescents. They were joined in the clinic by a registrar, nurse's aide or licensed practical nurse and, on some days, by a physician. An experienced educator was also present on some afternoons to help with group education; both women used in that role had master's degrees and training and experience in sex education, adolescent services and group process. Other staff, including the service program's principal investigator and the program director, were involved in the administration and supervision of the project but were not responsible for the day-to-day provision of services to students.

In addition, 12 students—three males and nine females—were recruited to serve as peer resources for one year each in the second and third years of the program. The peer resource members were trained to serve as representatives of and spokespersons for the program and to assist with such tasks as presenting visual aids. These students were identified by their T-shirts or large red buttons with the words, "Ask me about the Self Center." In addition to their specific duties, they added a sense of student ownership and participation in the program.

Prior to the initiation of the program, parents were informed of its objectives and told of the services to be provided and of the student questionnaires to be used as part of the research component. Parents were invited to consult with the service staff and, in the first year, a few were paid for their participation in a parents' advisory committee. However, parental approval is not required in Maryland for students to obtain reproductive health services.

Program Components

This article focuses on the day-to-day work of the two social workers and the two nurses assigned to the schools; the vast majority of the students' individual and group contacts with the program involved these workers. The services that these teams provided fall within six categories: three types of services rendered in the schools (classroom presentations, small group discussions and individual counseling) and three in the clinic (group education, individual counseling and medical services).

- *Classroom presentations.* Especially in the first year, the initial contact between students and staff of the Self Center program was often in the classroom; each semester the social worker (and sometimes the nurse) gave at least one full-period presentation to every homeroom class in her school. The presentations were more structured and didactic than the smaller group sessions, but included interaction and discussion related to values clarification, decision-making and reproductive health.

The first class presentation of each year introduced the Self Center services and began to raise the students' consciousness about the consequences of unprotected sexual activity and to support students who were not sexually active. During this first session, students also viewed "A Matter of Respect," a film featuring Jesse Jackson. The film, which focuses on adolescent pregnancy as a problem for males and females alike, was used as a catalyst for philosophical discussions that would create a bond of understanding between the staff and the students. In fact, this bonding was the primary goal of the session: The staff sought, in a spirit of open communication, to establish the students' rights to raise questions and discuss subjects of concern, including matters they had never before discussed with adults.

The second classroom discussion, taking place in the same semester or the following one, usually dealt with personal goals, sexual activity, pregnancy, decision-making, contraceptives and sexually transmitted diseases. Although two presentations per year were mandated, many students received more because the staff offered their services to teachers when a relevant subject was taught within the regular curriculum. In the 30-month school program, Self Center staff conducted approximately 350 classroom sessions.

- *Group discussions.* The social worker, and sometimes the nurse, spent about two and a half hours during the middle of each day in the school health suite; students could drop in during their lunch periods to talk, seek individual counseling or make appointments for clinic visits. Group discussions in the health suites generally occurred spontaneously, either as informal rap sessions or as focused discussions initiated by a team member who had identified a group of students with a specific problem (e.g., suspected teenage prostitution or physical immaturity that had led to teasing). In these sessions, students often raised questions about pubertal development; the social worker would pose such topics as future goals, decision-making, peer pressure, drugs, alcohol, the consequences of being a teenage parent and male-female relationships. The health suite was a hospitable environment in which to play "Transformer," an educational game that attempts to simulate a day in the life of a teenage parent, or "Humanopoly," a game that teaches anatomy and raises issues of values. Thus, small groups coalesced around a need, expressed by the students or perceived by a staff member; the discussions evolved under the guidance of professionals trained in group process. These informal sessions identified emotional needs that formal instruction could not; for some participants, the discussions led to individual counseling within the program or outside referral.
- *School counseling.* Each social worker had a well-publicized schedule and an accessible school office for individual consultation. Students could seek out the social worker to discuss relationships with the opposite sex, problems at home, a possible pregnancy and other personal matters. The social worker could encourage the student to come for weekly counseling, arrange for a clinic visit for the student, or refer him or her to another agency. If prolonged counseling was required, the clinic was often the better site because it conveyed more of a sense of privacy and neutrality, and was not subject to the academic schedule.
- *Group education.* After school, some combination of the four workers staffed the clinic, beginning at 2:30 p.m. most afternoons and continuing until 5 or 6 p.m. Students visited not only for individual appointments but also to participate in group discussions or to view videotapes and movies. The educational materials were selected to appeal to both males and females. Students visiting the clinic were required to register only if they were seeking individual counseling or reproductive health services. Appointments could be made ahead of time, but drop-ins were accommodated as quickly as possible.

Almost all youngsters who went to the clinic, with or without a specific appointment or purpose, received some form of educational intervention. Groups formed around a staff member in the informal atmosphere of the waiting room or around an audiocassette machine presenting educational material on such topics as sexually transmitted diseases, pubertal changes and talking to parents about sex. Books, pamphlets and the games described previously were also available for student use, and their ability to organize activities themselves contributed to the program's message of personal responsibility.

Table 1. Number of student contacts with program staff, by site and type of service, according to gender and school level, December 1981–June 1984

Site and type of service	All students (N=3,944)[*]	Female Jr. high (N=1,001)	Female Sr. high (N=1,163)	Male Jr. high (N=1,132)	Male Sr. high (N=581)
Total	**33,388**	**9,175**	**16,095**	**5,475**	**2,565**
School	**22,633**	**7,211**	**8,655**	**4,445**	**2,254**
Class presentation	7,188	2,354	1,875	2,260	683
Group discussion	13,742	4,503	5,614	2,114	1,460
Indiv. counseling	1,703	354	1,166	71	111
Clinic	**10,755**	**1,964**	**7,440**	**1,030**	**311**
Group education	5,377	1,007	3,600	594	166
Indiv. counseling	2,243	402	1,310	407	124
Medical visit	3,135	555	2,530	29	21

[*] In this table and Table 2, 67 students are included who appeared on a school list or on staff logs but whose school or gender was unknown; column also includes 78 contacts with the program by these students.

Some clinic education sessions were more organized in nature: Groups of approximately 10 were invited into a separate room to discuss topics relevant to their personal experiences, their reproductive education and their sexual behavior. Like the discussions in the school health suite, these sessions placed heavy emphasis on values clarification, personal decision-making and helping students to see their sexual behavior in the context of their own long-range plans.

- *Clinic counseling*. A student could become a registered patient at the clinic because of the need for an individual counseling session with a social worker. The initial interview with most female enrollees was sociopsychological in nature, eliciting personal information on sexual experience, family relationships and school achievement. Individual counseling sessions addressed personal and family problems, such as a family fight, prior abortion, a current pregnancy, a sexual relationship or a school failure. The program's focus on reproductive health did not preclude a broad interpretation of its counseling mission.

The social workers provided much of the health education through individual counseling. For example, an individual who had had repeated bouts with sexually transmitted diseases would receive individual counseling and information on their cause, how they spread and how they are treated. In addition, social workers dispensed foam and condoms to male registrants and at times to females, after suitable counseling on their use. Using a case-management model, the social workers collaborated closely with the nurse-midwife and nurse practitioner, often discussing in advance of a patient's visit what approach should be taken.

- *Medical visits*. Females seeking other contraceptive methods—and males with physical problems related to reproductive health—had to see the medical staff. Medical visits might be made for pregnancy tests, discussion of menstrual problems and treatment of sexually transmitted diseases, for example. Some serious conditions related to areas other than reproductive health were also diagnosed. Young women who sought contraceptive services were usually given comprehensive examinations by the nurse or gynecologist at the first medical visit. Medical staff attempted to care for a patient's physical needs, to teach the patient about his or her body and to address the emotional issues that can influence an adolescent's compliance with reproductive health care—issues affecting appointment-keeping, contraceptive continuation, early pregnancy testing and appropriate medical follow-up.

Program Utilization

The data sources for quantifying the services utilized were clinic records, staff logs and school enrollment lists. The clinic had sign-in sheets in the waiting room, and the staff completed registration forms for students seeking individual services, medical history forms for students who saw a nurse or physician, records for those who saw a social worker and a summary form for clinic visits not otherwise documented. The staff logs, maintained daily by the two nurses and two social workers, recorded all school and clinic contacts they had with students. These were the only forms completed totally for research purposes. In combination with clinic records, the logs provide an estimate of the overall time invested in each service component.

A difficult quantitative exercise in evaluating programs in a school setting is obtaining an accurate count of the students eligible for service. On the surface, it seems straightforward—include anyone enrolled in a program school at any time during the program period. However, school systems update rolls frequently, and each is a little different, accounting for transfers, dropouts and late registrants. Since we wanted to obtain a maximal count of the students eligible for services, we included everyone who was listed on any of the eight school rolls we obtained covering the program period, plus a few people not on the rolls who showed up on some log or clinic form. We will report program coverage in terms of the proportion of the maximal student population reached by various services. Many students who were chronic absentees, dropouts or short-term transfers are included in this count.[*] The program would have had little opportunity to reach many of these students, some of whom may never have attended school at all. We thus consider the estimates of program coverage that result to be conservative, and we will provide an alternate estimate of program coverage that takes into account the chronic absentee rate in the schools.

Table 1 categorizes all student contacts during the three academic years that the program operated.[†] All encounters with students entered on a log, clinic record or sign-in sheet are counted as contacts; casual encounters between staff and students are not recorded or counted. Overall, 33,388 formal contacts are included in the analysis; this figure is a minimum estimate, as some contacts may not have been recorded and a few contacts are excluded beause of missing information. Sixty-eight percent of contacts took place within the school setting; slightly less than one-third of these occurred in the classroom, where contact was not elective and where large numbers of contacts occurred at once.

The marked popularity of small group encounters in the school health suite is evident in the aggregate service numbers. Forty-one percent of all student-staff interactions fall into this category. While much individual counseling was done in the school, the proportion of individual contacts in the school setting is much lower than that of group contacts. The social worker was often in the health suite alone and could only counsel individual students if a peer resource person or nurse was available to accommodate the other students. Nonetheless, the school was a good base from which to encourage attendance at the clinic, which was better geared for individual counseling and, as the numbers indicate, was more heavily used for that purpose than was the school. All counseling sessions at the school were voluntarily sought by the students, whereas in the clinic, individual counseling was required of those seeking contraceptives.

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[*] Based on a one-year estimate, the proportion of students chronically absent was 11 percent among senior high school males and females, 27 percent among junior high school females and 38 percent among junior high school males. Readers wanting more details on the selection of school denominators should see L. S. Zabin and M. B. Hirsch, 1987 (reference 1).

[†] Because student services did not begin until December of the first year of the program, the school portion operated for 27 months, or three months short of three academic years; the clinic operated year-round, opening in January of the first year and closing, for research purposes, when the program ended in June of the third year—a total of 30 months.

Table 2. Percentage of students using program services (and percentage after adjustment for chronic absentees), by site and type of service, according to gender and school level

Site and type of service	All students	Female		Male	
		Jr. high	Sr. high	Jr. high	Sr. high
	(N=3,944)	(N=1,001)	(N=1,163)	(N=1,132)	(N=581)
Total	**84.9 (112.2)**	**87.1 (119.0)**	**87.0 (97.8)**	**82.2 (132.6)**	**80.7 (90.7)**
School					
Class presentation	72.7 (96.1)	81.2 (111.2)	73.0 (83.9)	73.9 (119.1)	61.3 (68.9)
Group discussion	50.6 (66.9)	55.2 (75.6)	55.6 (63.8)	42.0 (67.7)	48.2 (54.2)
Indiv. counseling	15.2 (20.1)	15.3 (20.9)	29.8 (34.3)	4.3 (7.0)	8.8 (9.9)
Clinic					
Group education	26.7 (35.3)	24.2 (33.1)	42.1 (48.4)	21.0 (33.9)	12.4 (13.9)
Indiv. counseling	19.7 (26.0)	14.5 (19.8)	34.3 (39.4)	15.6 (25.2)	9.8 (11.0)
Medical visit	14.5 (19.2)	13.4 (18.3)	34.8 (40.0)	1.8 (2.8)	2.2 (2.5)

Note: Chronic absentee rates as reported by the schools were: junior high females, 27 percent; senior high females, 11 percent; junior high males, 38 percent; and senior high males, 11 percent.

The proportion of contacts that occurred in the clinic differs by sex and school level. The schools not only represented different age-groups but also different professional staffs in different educational environments. Whereas 46 percent of contacts with senior high females were in the clinic, only 12 percent of contacts with senior high males took place in that setting; among junior high students, 21 percent of female contacts and 19 percent of male contacts occurred in the clinic. Since clinic registrants who came for individual services—they frequently had both a counseling and medical appointment in one visit—were nearly always involved in some group experience, if only in the waiting room, they are also counted within the clinic group education category. Also included are teenagers who signed in on the waiting room log without seeing a staff member individually. Many other young people accompanied friends and took part in the day's activities without signing in—they are not counted in the figures.

Senior high school females were the most frequent patients of the medical staff, contributing 81 percent of all medical visits. About 16 percent of all program contacts with older girls were medical visits, compared with six percent for the younger girls. There were more individual counseling contacts among males than there were medical contacts, since males did not need a medical examination to receive contraceptives. They could obtain condoms and foam, along with contraceptive counseling, from social workers; indeed, 82 percent of all clinic visits to a social worker by males included the provision of contraceptives (not shown).

Some students had very brief durations of exposure to the program, and therefore less opportunity to use it, than did others. Few students who graduated from the junior high school in this study attended the program's senior high school, because they had a number of other schools as options. Consequently, hardly any ninth graders who graduated from the junior high in the first year of the program and none of the 12th graders who graduated from the senior high that year could have had more than six months of exposure to the program, which was initiated in December. In fact, 37 percent of those with no program contacts were exposed to the program during only that first partial year. The mean period of program exposure for students in this study was approximately 16 months, including summer and other vacation periods. Although the clinic was open during vacations, the school components were offered only when school was in session and were available to students for an average of 250 days.

A calculation of the mean and median number of contacts with the program by students who had a minimum of one contact indicates a mean of 10 contacts per student and a median of four in the course of the average 16-month exposure period (not shown). The mean number of contacts ranged from 5.5 among senior high males to 16.0 among senior high females; the median was three for males at both school levels and five for both the younger and older females. The mean is considerably above the median because of a few students who had a very large number of contacts with the program. A senior high school female had the largest number of contacts (234), with 227 being the most for a junior high female, 215 for a senior high male and 115 for a junior high male. Many of the individuals with large numbers of contacts were peer resource students, who were in frequent contact with the staff for training and for their personal needs, but other students also presented repeatedly in one site or both. This quantitative evidence that a few students monopolize much of the professional staff's time is confirmed by the staff themselves, who report that these heavy users were often among their most difficult and needy cases.

With Table 2, we move from numbers of contacts to percentages of students who had contact with the program. The first set of calculations uses total school enrollment as the denominator, and the results are the proportion of all students ever on the school rolls during the three years that the program was in place who utilized particular services. The numbers in parentheses are the estimates one gets if the total enrollment figures are adjusted for the rate of chronic absenteeism in each category.

Eighty-five percent of all students were reached by at least one component of the program. The 15 percent of the total number of students who had no contact with the program includes more males than females. When chronic absentees are taken into account, the proportion of regular attendees who have contact with the program reaches 112 percent. This proportion suggests that a program with a variety of components has the potential to reach even chronic absentees on occasion. Another possibility is that school estimates of chronic absenteeism are higher than they really are. A total of 3,349 individuals are known to have been reached by this program; a weighted chronic absentee rate for the schools would imply that only 2,985 were in regular attendance, suggesting an overestimate, especially among junior high students where the proportion of regular attendees reached by the program is 119 percent of females and 132 percent of males.

Approximately 73 percent of students

Table 3. Percentage distribution of students who participated in the program, by pattern of services used, according to gender and school level

Pattern	All students	Female		Male	
	(N=3,349)*	Jr. high (N=872)	Sr. high (N=1,012)	Jr. high (N=930)	Sr. high (N=469)
School contacts only					
Class presentations only	30.4	28.0	23.6	37.7	36.0
Other services (with/without class presentations)	38.2	44.2	28.0	36.7	48.6
Clinic contacts (with/ without school contacts)					
Group education only	7.0	10.2	7.1	5.7	2.1
Other services (with/ without group education)					
Indiv. counseling; no medical visit	7.3	2.2	1.3	17.7	10.4
Medical visits; no indiv. counseling	1.2	0.9	1.9	0.9	1.1
Both indiv. counseling and medical visit	15.9	14.4	38.1	1.3	1.7
Total	100.0	100.0	100.0	100.0	100.0

*Includes 66 students for whom gender and school information were unavailable.

ever on the rolls heard a classroom presentation, with the proportions higher among junior high students than among senior high students and higher among females than males. It is not clear why the proportion of senior high males is as low as it is (61 percent), since only about 11 percent of this group were considered chronic absentees. Conversely, the proportions in the junior high school, where chronic absenteeism was especially high, are larger than might be expected. Perhaps, since classroom discussions were more frequent in the junior high school than the senior high school, junior high students who were habitual absentees were more likely to make it to one or another session.

The popularity of the rap sessions in school is clear; from 42 percent of junior high males to 56 percent of senior high females availed themselves of this service. Female students were far more likely than male students to take advantage of individual counseling with a social worker at the school; this sex disparity was also true for senior high students in the clinic. However, junior high males were as likely as junior high females to see a social worker in the clinic. The highest proportions registering for both individual counseling and medical visits were found among senior high females. Although not shown in this table, there is a great deal of overlap between individual counseling and medical visits: Eighty percent of all first medical visits among females included a private social work contact, and 81 percent of all first social work visits among females were accompanied by a medical visit.

If the denominators are reduced by the amount of chronic absenteeism in each group, the proportion of junior high students utilizing services rises considerably. In fact, this calculation shows that among regular attendees, a larger proportion of younger males than older males took part in school discussion groups (67 percent compared with 54 percent) and utilized medical services (2.9 percent compared with 2.5 percent).

Another way of evaluating clinic contacts is to use only sexually active students as the denominator. A survey of students conducted as part of the research component provides an estimate of the proportion sexually active (not shown).[4] The number sexually active is computed for each group by multiplying that proportion by the number of students on the enrollment rolls at a representative point in the school year. (For the percentages given below we used the November roll, a useful single-point estimate because it is the first in the year in which transfers are likely to be recorded.) This denominator gives some idea of the prime target population of the clinic services, although the numerator (i.e., clinic registrants) includes a small number of students who were not sexually active. The adjustment for sexual activity makes the biggest difference among younger females: Among the 50 percent of all junior high females who were sexually active, the proportion who made medical visits was 27 percent. Among senior high females, the proportion was 48 percent. Looking at visits to a social worker gives a better idea of the proportion of sexually active males who may have received contraceptive counseling through the program; 21 percent of sexually active junior high males and 12 percent of comparable senior high males did so.

Table 3 summarizes the different combinations of program services that individual students utilized. There are actually 35 permutations, ranging from no services at all to all six of the options offered. Some of the patterns of utilization are representative of fewer than one percent of students. Table 3 collapses the 35 possibilities into six and shows the percentage of students who had contact with the program distributed among the six patterns of utilization. Thirty percent of the students were exposed only to classroom presentations. While this level of exposure is minimal, it does mean that these students knew of the program and its staff. Had they wished, they could have availed themselves of the program's more voluntary components, as did the remaining 70 percent of students who participated in the program. Half of those who utilized other services (38 percent) participated in activities within the school health suite but never visited the clinic. Those making use of voluntary services ranged from 62 percent of junior high males to 76 percent of senior high females.

Overall, 31 percent of the students utilizing one or more of the services attended the clinic at some time. About seven percent participated only in the group activities that occurred there. (Some 50 students who participated only in the group activities had no school contacts with the program, not even a classroom presentation. Many, particularly younger males, were not on the school enrollment lists, so it is possible that they were adolescents in the community who came with their friends and received group service for which they were not technically eligible.) As Table 3 shows, only small proportions of female students had a social work visit in the clinic without a medical visit. Thirty-eight percent of senior high girls had both a medical and a social work visit; this was true for 14 percent of junior high female students, but fewer than two percent of male students in either school. Most of the males who registered for an appointment had only a social work visit, for reasons discussed previously.

In general, detailed patterns of utilization not shown here reveal a tendency among students making medical visits, and to a large extent among those seeing social workers, to seek many different types of contact with the staff. The modal group of medical visitors had made use of all six service components. The use of a wide range of services is consonant with the expressed intent of the program that medical services be linked with education and counseling. The school components, conceived as a bridge from the classroom to the clinic appear to have served their intended purpose, while serving as the primary components of the program for many students who received all their services within the school.

Discussion

The material that has been presented outlines not only how the model was conceived but how it functioned, not only what the program offered but what was used. This project was highly focused in its goals, and generally provided only reproductive health education and services. Medical referrals were available, but these data cannot give reliable estimates of the demands a more comprehensive medical clinic might experience. However, the implications of the data for the staffing and design of similar programs are many.

The number of student-staff contacts can be extremely large in a program that is well accepted by the students. Decisions as to whether or not to accommodate all demands for repeated contacts have staffing implications. Of note is the important role played by the social worker in meeting the high volume of demands placed upon a sympathetic staff.

- Although the classroom maximizes contact and is useful for some purposes, small groups were especially popular among these adolescents. The school appears to be an excellent location for small-group discussions, since the data suggest that relatively few students attended group sessions in the clinic unless they also came for some other clinic service. Consequently, a large proportion of students reached by the program might have been missed without this school component. Furthermore, most clinic attendees are sexually active; therefore, it may be that only in the school is there a real opportunity to delay the onset of coitus.
- Group education in the clinic reached fewer nonregistrants than had been anticipated. Data analyzed here cannot validate the staff's impressions that attendance for educational purposes often preceded attendance for services that required registration. If that impression is correct, it would indicate that students used group education until they felt comfortable enough to ask for individual services. At this point we can only say that educational opportunities in the clinic were well used by those who came for individual services; perhaps the needs of nonregistrants were adequately met, as they should have been, within the school.
- Individual counseling can take place in either a school or a clinic location, and almost 40 percent of students who received this service in one location did so in both. Counseling is often an on-going process and consumes a lot of staff time.
- Senior high females require the greatest proportion of reproductive health services. They are more likely to be sexually active than younger students, and many who are engaging in coitus use oral contraceptives, a method that requires attendance at a medical facility. Consequently, programs for senior high school girls should plan to deliver large numbers of clinic services.
- The mean number of staff encounters per male student is about one-half the number for females. But even senior high males, the group least likely to utilize clinic services, seek out small group sessions in the school. A relatively large proportion of junior high males use the social workers in the clinic as a source for condoms as well as information and counseling. The fact that these staff members were female did not seem to hinder their ability to serve as confidants, educators and counselors to young males.
- The peer resource students utilized a large amount of staff time. These students appear to profit on an individual basis from their involvement, but their training and nurturing is on-going and intensive. The intrinsic value of their services may be worth the investment, but these data suggest that they should not be viewed as a means of saving staff input.
- Programs may well have a small number of clients who use inordinate amounts of staff time. Median usage rates appear to be in a reasonable range and are considerably lower than the means, which are influenced by high extremes. The question must be raised as to whether the continuing involvement of the staff in long-term, serious problems is a judicious use of their time or whether referral is a wiser course.
- The concept of a school-linked clinic operation—or conversely, a clinic-linked educational and counseling project in the school—is a model that works in terms of the flow from one setting to the other. Approximately one-quarter of the students encounter the staff in both settings. Some who attend discussions in the school health suite may not wish to enter a clinic, and would not do so even if it were located in the school. For others, in-school contact can serve as a bridge to the clinic, where counseling and medical services can proceed without the limitations of school hours, calendars and administrative controls.
- Formal efforts to involve parents generally failed. Information was not recorded on the limited number of contacts with parents, who were often seen on an individual basis but who rarely participated in meetings about the program. Students were encouraged to tell their parents that they utilized the program and many did so, but a great deal more time must be invested if real and continuing parental involvement is desired. Similarly, greater faculty involvement would have been useful, but that, too, would require time not allocated in this program.

In conclusion, we believe the results of the Baltimore pregnancy prevention program reported earlier[5] reflected an impact on the school populations that was substantially greater than could be expected if this had been a clinic-only program. By putting school and clinic components together, the program created an atmosphere that legitimized discussions of sexual conduct, contraception, abstinence and pregnancy among those who used its individual services and those who did not. Although its focus was narrow and specific to reproductive health, its offerings in counseling and education and in values clarification and life planning were broad. In combination with the positive effects of the program, these utilization data suggest that the model was highly acceptable to the students, that the staff was seen as a valuable resource and that both the clinic and school components contributed to the program's success.

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II. What Did It Cost?

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Summary

An experimental pregnancy prevention program for junior and senior high school students consisted of classroom lectures, informal discussion groups and individual counseling in the schools and group education, individual counseling and reproductive health care in a nearby clinic. The structure of the program allowed for extensive individual counseling for students who desired it, and the reported costs are thus considered generous. School-based services utilized 40 percent of a total three-year budget of $409,250, and clinic services, 60 percent. The average cost per student served was $122, with the average per female student almost four times that per male and the average per senior high student more than twice that per junior high student. Students who utilized more expensive types of services, such as individual counseling and medical services in the clinic, also used other program offerings more frequently. Services to students who attended only class lectures cost an average of $13.20 to deliver, while students who utilized all services cost the program an average of $546 each.

Introduction

The variety of programs or components of programs that attempt to address some aspect of adolescent pregnancy has resulted in a wide range of cost estimates both for entire programs and per patient. The diversity in organization, types of services offered and primary goals, however, makes cost comparisons difficult, as does the diversity in methodology and sources of data from which the estimates are made. One report estimates the United States' total expenditures for family planning clinic services to be $81 per woman of reproductive age, including those who do not use clinic services.[1] Based on statewide expenditures, an Illinois report estimates a cost of $10 per teenager for family life education and $75 per teenager for family planning.[2] One analysis cites $100 per patient for comprehensive school health services.[3] Another widely quoted figure of $125 per student is an average that was computed by dividing wide-ranging estimates of costs in 15 comprehensive school health clinics by estimates of the numbers of students using each facility; a number of costs, such as those for maintenance and overhead, were not included in the analysis.[4] None of the programs mentioned has published a detailed description of services, and none is proposed as a basis for replication. Project-specific estimates have been made for programs for pregnant and parenting teenagers, but not for programs that aim at prevention.[5]

This article explores the costs of one program, described in the preceding article, that had as its primary objective the prevention of pregnancy in a high-risk population. Two comments should be made at the outset. First, the project was conceived as an experimental model with a strong research component. Although research costs are not included in our analysis, the very structure of the program was luxurious, with generous staffing and ample time to meet the demands of the students. There is reason to suppose, therefore, that the reported costs are maximal. Second, the project was connected to a major health institution and shared staff with that institution. In replicating any one project, especially one with these advantages, the question must always be raised of whether the costs can be duplicated. Adjustments made in accommodating program costs to the accounting and staffing requirements of The Johns Hopkins University (the affiliated institution) are reported, and the overall impact of the institutional association is addressed.

The denominator used throughout this analysis to calculate per student costs is not total enrollment but rather students who had contact with the program; as described in the preceding article, this probably includes all students in school on a regular basis. Data on student utilization of various program components were drawn from project records, as detailed in the preceding article. The Johns Hopkins University accounting records provided a systematic and complete account of the expenditures of funds assigned to the program, which was underwritten by a private grant. Records kept by program staff and interviews with them were utilized only to help in assigning time estimates to particular functions.

The administrative staff included the principal investigator of the service project, a program director who managed day-to-day operations and a secretary who also served as the clinic registrar. The core service staff consisted of two social workers, both with master's degrees, and two registered nurses (a nurse-midwife and a pediatric nurse practitioner). They were supported in the clinic by one nurse's aide or licensed practical nurse and were joined

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on some afternoons by a physician, often the medical director, who had the ultimate responsibility for the program's medical services. Physician time was scheduled differently as the program developed: At first, a physician was utilized for one afternoon a week, then later, for portions of afternoons or on an on-call basis. On busy clinic afternoons, the staff was augmented by an educator with training and experience in sex education, adolescent services and group process. Peer resource students, trained to encourage student participation and to assist with audiovisuals and small group discussions, were paid for their help. During the first year, parents were occasionally involved and paid to serve on an advisory committee. An outreach worker compensated by another program played a small role in the first year as well.

Maintenance and custodial staff employed by the university were paid out of program funds for time spent in the clinic. The university did not charge the program directly for rent and utilities (except for telephone expenses); these were covered through an annual overhead charge of 15 percent of project funds that the university collects from all grants. This charge included bookkeeping and payroll functions. The 15 percent rate is almost identical to the actual per-square-foot charge attributable to the space occupied. At the funder's request, the university waived the charge in the first year of the three-year program, but for the purposes of this analysis, we have added a similar amount to first-year costs to represent rent and utilities. As is customary in most schools around the country, no rent was charged for the in-school health suites used by the program.

Because all indirect costs were thus applied to space, there was no item in the program budget for administrative functions supplied by the University, many of which were attributable to the recordkeeping requirements of a large institution. Fringe benefits and personnel practices of the affiliated university and hospital also put a larger burden on the budget than might be expected in freestanding programs. It may be that administrative monies saved and monies spent (or time saved and time spent) because of this program's relationship with a major university hospital cancelled one another out; it would be difficult to prove that the relationship systematically increased or decreased administrative costs. Some budget adjustments were made when staff and materials were shared, but often time devoted to this project by hospital staff balanced time devoted by program staff to other tasks in the hospital; similarly, materials purchased with program funds were shared with the hospital, and hospital materials were shared with the program. Finally, because an extant facility was used, as is often the case with programs run in cooperation with another institution, start-up costs did not include furniture or clinic equipment, such as examining tables.

The two social workers and two nurses maintained daily logs of all their student contacts. These enabled us to estimate the average time invested in each type of program encounter. Although other staff did interact with students at times, the four key staff members were primarily responsible for the six school and clinic services offered by the program. Therefore, we have allocated the costs for the entire project to the six component services according to the amount of time the four workers invested in each component. This method of calculation allows for a breakdown of costs by site (school and clinic). The analysis produces maximal estimates of the costs of each service, because all expenditures for the program—including administration, rent, supplies and support staff—are assigned to one or another of the services provided. When divided by the number of student contacts within that service, the cost of a medical visit, for example, will include expenditures for the physician, nurse's aide or licensed practical nurse assisting in the clinic; contraceptives and other medical supplies; a share of overhead for administration and maintenance; and the portion of the nurse's time allocated to clinic visits as reflected in her staff log. Similarly, the cost of individual social work visits include expenditures for educational materials, an extra educator in attendance during clinic hours, overhead and the social worker's time.

The distribution of staff time differed in start-up and later segments of the program and in the summer and winter segments. Consequently, costs were computed as a percentage of the time devoted to each type of service in different time periods covering the course of the program. These costs were then averaged to determine an overall cost per service.

A few costs are divided between the school and clinic sites before being allocated according to the time distribution index. The costs for administrative staff are divided 50 percent to each site, with the exception of those for the secretary, who also acted as clinic registrar—her time is divided 25 and 75 percent between school and clinic services, respectively. Similarly, because the clinic served as the administrative center for both sites, 25 percent of office supplies, rent and maintenance costs at the clinic are attributed to the school component of the program. Within the clinic or school component, costs not specific to one or another site are prorated according to the time distribution of the social workers and nurses.

Table 1. Program costs, by type of expenditure, according to site, September 1981–June 1984

Type of expenditure	Total	School	Clinic
Total	**$409,250**	**$163,500**	**$245,750**
Personnel	**329,000**	**143,500**	**185,500**
Administrative	117,500	49,500	68,000
Social workers & educators	93,750	50,250	43,500
Medical staff	105,750	41,500	64,250
Students & parents	3,250	0	3,250
Maintenance	8,750	2,250	6,500
Rent & utilities	**43,250**	**10,750**	**32,500**
Supplies	**35,250**	**8,750**	**26,500**
Office	7,250	1,750	5,500
Educational	14,000	7,000	7,000
Medical	14,000	0	14,000
Travel	**1,750**	**500**	**1,250**

Budget Breakdowns

Table 1 shows a total budget of approximately $409,250 for the three school years.* School-based services utilized 40 percent of the budget, and clinic services, 60 percent. Personnel costs for administration include a small portion of the time of the principal investigator for the service program, all of the time for the program director in the first two years and half of her time in the third year, and all of the time for the secretary/registrar in all three years. With the reduced activity of the program during school vacations, the assignment of social workers and nurses to the hospital helped control costs while allowing for continuity of staff. The fourth line of the table shows the costs for the time of the two social workers (whose average annual full-time salaries would have been the equivalent of $20,000, including fringe benefits) and the hourly cost of educators during busy clinic afternoons. The medical staff category accounts for the costs of the two nurses (with an average full-time equivalent salary of $24,000, including benefits) and an hourly cost for the part-time physician and nursing assistants.

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*The program ran from September 1981 to June 1984. Staff work started between September and November 1981; the school services commenced in November, and the clinic opened in January 1982.

Table 2. Number of students served, total expenditures and costs per student, by gender and school level

Gender and school level	N	Total	Costs per student		
			Average	Maximum†	Minimum
All students	**3,349***	**$409,140**	**$122**	**$3,052**	**$3**
Junior high	1,834	143,106	78	1,680	3
Senior high	1,508	266,001	176	3,052	3
Male	**1,400‡**	**68,438**	**49**	**891**	**3**
Junior high	930	47,460	51	815	3
Senior high	469	20,970	45	891	3
Female	**1,888‡**	**340,281**	**180**	**3,052**	**3**
Junior high	872	95,397	109	1,680	3
Senior high	1,012	244,868	242	3,052	3

*Includes students with gender and/or school level unknown.
†Maximum costs exclude peer resource students. ‡Includes students with school level unknown.

Table 2 shows the allocation of expenditures by sex of student and school level; the average cost per student served is $122. The average cost per female student is almost four times that per male, and the average cost per senior high student is more than twice that per junior high student. These mean costs represent widely divergent extremes, as the maximums and minimums suggest. The $3 minimum is the cost per student of in-school discussion groups conducted by a social worker, who led most of these discussions and whose hourly rate was less than that of the nurses, who also led some discussion groups. Maximums reach extraordinarily high levels, even excluding the costs attributable to the peer resource students, which are omitted from these maximum figures and will be discussed later. The maximum of $3,052 for a senior high female covers some 228 contacts that one individual had with the program staff.

Table 3 shows the cost for each of the six types of service. It documents the relatively low cost associated with small-group work both in the schools and in the clinic—slightly more than $4 per student contact. This was less than a class presentation. Although each presentation included many more students, they took time to prepare and lasted for a full class period.

Table 3. Number of contacts and cost per contact, by site and type of service

Site and type of service	N	Cost
Total	**36,434***	**$11.23**
School	**25,570**	**6.42**
Class presentation	9,263	5.56
Group discussion	14,604	4.44
Individual counseling	1,703	28.08
Clinic	**10,755**	**22.78**
Group education	5,377	4.22
Individual counseling	2,243	42.24
Medical visit	3,135	40.69

*Includes 109 contacts with site or type of service unknown.

Note: Total number of contacts is 3,046 greater than reported in Table 1 of the preceding article: The 109 with site or type of service unknown were not included in the analysis of services; 2,937 contacts made jointly by two staff members were counted as one contact when tabulating services but as two when tabulating costs, because each worker contributed time.

Small-group costs contrast dramatically with the high price of individual counseling, which averaged $28 in the school setting and $42 in the clinic. No attempt was made in this program to reduce the amount of time devoted to these sessions, and the costs reflect that decision. Social workers did all of the clinic counseling and 60 percent of the school counseling. Yet, even though personnel costs were less for social workers than for nurses, the average cost per clinic contact was more than that per school contact because private consultations were longer in the clinic. In fact, on a per contact basis, clinic visits with the social worker were more expensive than visits with medical staff. Since 80 percent of all clinic registrants asked for a contraceptive method at their first visit and since counseling was required for all contraceptive patients, these counseling costs are part of the process of introducing and maintaining a contraceptive regimen.

Most of the encounters of students with the staff in the first year of the program cost more than in the last two school years, because of start-up costs and because of the time it takes for patient flow to build. With time and improved efficiency, medical service costs were reduced, so that individual medical visits reported in Table 3 at almost $41 for each encounter averaged slightly more than $31 at peak periods. Clearly, the expenditures reported in any study of costs will be affected by the duration of the program, because start-up costs are attenuated over time.

Table 4 classifies all of the students touched by the program by the pattern by which they utilized services. Moving across the table, groups include those who heard only a classroom presentation, used only school components, visited the clinic but never sought individual services, sought individual counseling with the social worker, had a medical visit, and had visits with both the social worker and medical personnel. As expected, mean costs per student varied widely depending on how many different components they utilized, and moving from left to right, increasing levels of involvement imply sharply increasing costs. For example, those students who attended only class presentations attended an average of 2.4 such sessions during their program exposure, at a cost of $13.20 to the program. Those students who participated in other school activities without attending the clinic averaged 7.2 contacts with the program—2.7 class presentations, 4.3 group discussions and 0.2 counseling sessions—for a total of $40 worth of services.

This table suggests that not only does use of more expensive components increase costs, but those students who register for individual clinic services use more of each component along the way. For example, the average number of clinic group contacts for students whose only clinic participation was in group education (1.4) was lower than that for those who had individual counseling (2.6), and was much lower than that for those who utilized both counseling and medical services (8.2). Note that even the row reflecting attendance at class presentations increases with greater program involvement, implying that these students spent more time in school, or at least attended these classes more often. Thus, the students who utilized the more expensive services used more of the other services as well. For example, costs for school services alone for those students who visited the clinic for both individual counseling and medical services totaled $140, in comparison to the $40 total for the same services for those who restricted their contacts to the school setting.

The clinic data indicate that the small subset of students (40) who utilized medical services but never met with the social worker had lower overall costs ($119) than those who received counseling but no medical services ($162). The first group were primarily individuals who came for one medical visit. They contrast strikingly with students visiting for medical services who also consulted a social worker, a group with almost six medical visits each, costing an average of $235 for medical treatment alone. What is noteworthy about this latter group, however, is the fact that their total cost to the program of more than $545 each is not solely a function of their medical costs but reflects their more extensive use of almost all services.

A breakdown by sex shows the same pattern among females: The more types of service the student participated in, the more she used each service. Among males, the pattern is not quite as consistent. A particular exception is a small group of 63 who used the clinic only for group activities. Because these students also attended the smallest mean number of class presentations, many may not have been members of the student body at all. Some may have showed up at the clinic with partners or friends, since 20 of them appeared on clinic sign-in sheets but did not appear on any of the school rolls. While they were technically not eligible for service, out-of-school partners might be reached in this manner at little cost, a possibility that other programs might wish to explore.

Table 5 (see page 192) divides the services offered and their cost per student into three broad categories—education, counseling and the provision of contraceptives—ignoring the site at which students received these services. Students in the first group received classroom or group education—in the school, the clinic or both—but no private consultations. Those in the second group received individual counseling at at least one site. Those in the third group were registered clinic patients who received some contraceptive method from social workers, medical staff or both. The overall cost per contraceptive patient, of whom there were 740 in the program, averaged $432. Although not evident in the table, this cost was considerably less for the 241 males ($174) than for the 449 females ($557). All the figures shown in the table include the large costs associated with training and serving the 12 peer resource students. The cost for each of the 12, all of whom were contraceptive patients, averaged $2,248, plus direct stipends paid when they assisted at the clinic. Excluding the expenditures for these students would decrease the cost per contraceptive patient to $402 and the total cost per student to $115.

Costs were also calculated according to whether students attended a program school for one, two or three years. Costs rose steeply, especially between one and two years' exposure. The sharp rise is attributable not only to the greater number of services used in a longer time period but also to the much larger proportion of those students exposed for two or three years who utilized the clinic for contraceptive services. This implies return visits for those who continued to use contraceptives. Longer exposure also implies older ages, but some of the differential remains even when the age is controlled for.

Table 4. Mean number and mean cost of contacts per student, by type of service, according to pattern of utilization

Type of service	Utilization pattern					
	Class presentation only	School contact only	Clinic group education	Clinic counseling; no medical	Medical; no clinic counseling	Individual counseling & medical
TOTAL	(N=1,018)	(N=1,279)	(N=234)	(N=246)	(N=40)	(N=532)
Contacts	2.4	7.2	7.8	15.6	11.0	35.0
Cost	$13.20	39.74	42.44	162.11	119.21	545.66
SCHOOL						
Class presentation						
Contacts	2.4	2.7	2.5	3.6	2.8	3.5
Cost	$13.20	14.66	13.91	20.01	15.99	19.73
Group discussion						
Contacts	na	4.3	3.6	6.8	4.2	12.0
Cost	na	19.55	15.07	28.39	17.71	53.74
Indiv. counseling						
Contacts	na	0.2	0.3	0.4	0.6	2.4
Cost	na	5.53	7.70	11.47	17.58	66.90
CLINIC						
Group education						
Contacts	na	na	1.4	2.6	1.9	8.2
Cost	na	na	5.75	11.06	7.91	34.41
Indiv. counseling						
Contacts	na	na	na	2.2	na	3.2
Cost	na	na	na	91.17	na	135.93
Medical visit						
Contacts	na	na	na	na	1.5	5.8
Cost	na	na	na	na	60.02	235.27

Discussion

In a sense, the attribution of a cost to each service is an artifact of the analysis. The staff had a fixed cost; each student did not add an incremental cost but rather used a piece of the time that would have been paid for whether or not a service was delivered. Could that staff have been smaller? In the interest of continuity between the school and the clinic, the model called for the placement of a staff person in the school in the morning and the same staff person in the clinic in the afternoon. Without violating the model, no savings could be effected there; however, considerable savings were realized after the first year, by putting only the social workers (and not the nurses) in the schools on a daily basis. In the second and third years, the nurses went into the schools only for special lectures or activities. This saving was effected because data from the aggregate research survey conducted at the end of the first year revealed that students who went to the health suites had discussed the same subjects with either professional. They did not appear to require a medical person. The ability to retain higher cost medical personnel for only the half-time clinical operation represented an important economy.

One of the big surprises in these data was the evidence that social work counseling in the clinic was more costly, per contact, than medical care. This is clearly a function of the time invested in each encounter, time which was allowed in this service model. Consequently, even with the price of contraceptives, other medical supplies, physicians and support staff included in the estimated cost of visits with the nurses, the time invested in clinic counseling by social workers made their sessions more costly. The belief of everyone associated with the program is that the program's effects would be difficult to replicate without the social work component. Furthermore, if more counseling were to fall on the medical staff, with their higher hourly costs, these services would become prohibitively expensive.

Does that imply that it is necessary to invest in virtually unlimited personal counseling for any student who requests it? Should those in need of repeated sup-

Table 5. Number of students and cost per student, by services used, according to years in program

Services used	All		One year		Two years		Three years	
	N	Cost	N	Cost	N	Cost	N	Cost
Total	**3,349**	**$122**	**1,706**	**$ 39**	**1,014**	**$174**	**629**	**$264**
Classroom and group ed. only	2,325	23	1,402	14	603	29	320	50
Individual counseling	284	126	108	87	102	127	74	183
Contraceptive services	740	432	196	188	309	473	235	581

portive care be referred instead to outside agencies? The staff believes it would have been difficult to convince the students who depended most heavily on them to accept an outside referral, because when the attempt was made in several cases, it was difficult to convince the student to follow through. It is also the sense of the staff that those who made the largest demands on their time were not always their greatest successes, but often were their most needy cases. If as a result of extensive counseling, a student's tenure in school can be extended one year or an unintended pregnancy can be postponed by a few months, then reducing the counseling component might be a serious mistake. In the absence of a control clinic in which counseling time is limited, these questions cannot really be answered. What is not in doubt, however, is that in a disadvantaged urban population where few resources are available to teenagers, life-event counseling and crisis management are major unmet needs.

Group education in the clinic was an extremely economical way of performing several functions: For unregistered students, it introduced the ideas and attitudes of the program, and for some, it served as the precursor to registration; for other students, it was an on-going source of educational support in the absence of individual clinic services; and for registered patients, it augmented more costly individual services and updated their education on repeat visits. Small-group work in the school, at comparable costs, accomplished many of the same goals for the same students, and for many who would not otherwise have received this service.

A subjective assessment by the staff was that the program probably invested too little time in establishing positive relationships with the faculty of the program schools. If more time had been spent on this endeavor, teachers might have involved the staff in more classroom discussions, the social workers' time in the school would have been more efficiently used, and the cost of classroom contacts would have been considerably less than the cost of small-group sessions, not more.

The use of staff time by the peer resource students cost almost $27,000, averaging $2,248 for each member. That is a major investment and was supplemented by direct stipends paid to them totaling more than $2,000. It was the impression of the staff that the payoff came more in the individual growth it encouraged for these students than in the original goals of referring other students to the clinic or providing assistance to the staff. All 12 students were contraceptive patients, so some of the expenditure would have been incurred even if they were not peer resource students. If one subtracts, from the approximately $29,000 that these individuals cost, the average expenditure on three male and nine female contraceptive patients, the remainder is almost $23,500, or $11,750 per year. This is a relatively high price to have paid for the help of the peer resource students, although it also paid for their contribution to the students' sense of ownership and pride in the program. There are probably less costly ways of promoting that sense of student participation. A decision on whether or not to include a similar component should probably be made with the knowledge that the drain on staff time, and hence on program dollars, is considerable.

Costs for individual medical services do not appear high in view of their inclusion of tests and contraceptive supplies, especially since after the start-up period, they came down to $31 per contact. Critically important to an estimate of medical costs in a new program are data on the percentage of students who are sexually active, because of the large impact of their demand for contraceptive services, and in particular, the costs of their initial visits.

The association of a school-linked program with a larger, year-round institution can be cost-efficient. The ability to share staff so that they can be used only where and when needed would serve as an economy to any program, especially one with the time and seasonal constraints of a school-linked operation. Cooperation between schools and nearby health delivery systems also permits the provision of year-round health care in one site. This model, which places the clinic adjacent to, but outside, the school is politically attractive. It is also cost-effective because in many locations, it allows one clinic to serve more than one school. However, it requires more than an informal linkage; it requires the presence of program staff in the school.

Forty percent of the cost of this model program was used for school services and 60 percent was used for clinic services, even though many more students used the school components than used the clinic components. The $163,500 that the school services cost—or between $50,000 and $60,000 per academic year—seems a relatively small amount to have spent to reach almost all the students in the classroom, among them 1,018 who were reached only in that setting. It also covered the delivery of small-group and individual services to the 1,279 students who sought them out only in the school setting and to the 1,052 students who received services in the clinic setting. Much of the program's success in postponing the onset of intercourse[6] must have been due to the school component, since it was usually the sexually active students who came to the clinic. The program's success in bringing about measurable change in the student body as a whole appears to have been predicated on establishing an atmosphere of communication and responsibility among a larger segment of the students than attended the clinic, which again reflects the value of the school component. This study suggests that the cost of that component is relatively low, which may recommend the model for replication in other jurisdictions.

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School-Based Health Clinics: Three Years of Experience

By Joy G. Dryfoos

Summary

In the last three years, comprehensive school-based clinics have proliferated throughout the United States: There are currently 138 clinics in 30 states and the District of Columbia, and at least 65 more are in the planning stage. Clinic programs differ widely in their organizational structure, operating costs, range of services and funding sources. Although some clinics are funded by private foundations, increasingly, programs are being initiated by local public health departments supported by state funds.

Only 10–25 percent of all clinic visits are for family planning services. While all of the clinics provide counseling on family planning, most of the state-funded clinics either prohibit the use of funds for contraceptive supplies and abortion referral or allow grantees to decide what to do about the issue of pregnancy prevention. To date, no study has found that rates of sexual activity increase among students who participate in clinic programs. There is some evidence indicating that participation in school-based clinics may have a positive impact on contraceptive practice.

> **". . . The movement to make comprehensive health, social and family services accessible to school populations is very strong . . . [and] is propelled by new, large-scale youth-at-risk initiatives sponsored by states and foundations."**

Introduction

Three years ago in this publication, I reported that comprehensive school-based health clinics might hold promise as an approach to preventing teenage pregnancy.[1] At that time, there were 14 programs operating 32 school clinics in nine states. Since then, efforts to develop school-based clinics have been initiated in almost every major city in the United States as well as in many rural areas; by the latest count, 138 such clinics are now in operation.* While the debate over comprehensive health clinics continues, interest in school-based programs has been spurred by a growing recognition of the link between low basic skills and school dropout, poverty and early childbearing.

A body of literature on school-based health programs has begun to emerge.[2] The National Research Council of the National Academy of Sciences has singled out comprehensive health clinics in schools with large, high-risk populations as a most promising approach to pregnancy prevention.[3] The Office of Technology Assessment has recommended the development of comprehensive school-based clinics in order to reduce high-risk pregnancies among teenagers.[4] In addition, a number of prominent national organizations, including the National Parent-Teacher Association, the American Academy of Pediatrics, the National Education Association, the American College of Obstetricians and Gynecologists and the Association of School Nurses, have issued statements in support of comprehensive school-based clinics.

On the negative side, the National Right to Life Committee, the Eagle Forum, the Christian Crusade and other organizations have raised strong objections to pregnancy prevention interventions in the schools.[5] The former Secretary of Education, William Bennett, has led a crusade against school-based clinics, calling them a "rotten" idea that constitutes an "abdication of moral authority."[6] In late 1987, the National Conference of Catholic Bishops issued a policy statement calling for the enactment of laws to bar the dispensing of contraceptives and the provision of abortion counseling in schools. Nevertheless, the statement acknowledged the importance of school-based clinics to help meet the broader health needs of disadvantaged youth.[7]

In some communities, opposition to school-based clinics, although numerically small, has captured a lot of media attention. A typical newspaper headline, "Pill Goes to School," triggered an extended controversy over the opening of the DuSable Clinic in Chicago.[8] Nevertheless, organized opposition has prevented the initiation of clinic programs in only a few places: San Diego, Boston and a community school district in New York City are three areas where plans for clinics are known to have been scuttled because of failure to gain support from school authorities.

The growth in the number of school-based clinics results from the recognition that increasing numbers of young people who live in disadvantaged communities will never graduate from high school and may never enter the labor force unless they are provided with a wide range of services. The Committee for Economic Development, which represents over 200 of the nation's leading business executives, issued a report acknowledging that the "American Dream . . . is in jeopardy . . .

Joy G. Dryfoos is an independent researcher. The research on which this article is based was funded by the Carnegie Corporation. The views expressed herein are those of the author, however, and do not represent the opinions of the Carnegie Corporation. The author wishes to acknowledge the assistance of many colleagues who reviewed drafts of this article and contributed their ideas.

*The universe of school-based clinics described in this article includes only those sites where family planning counseling (as a minimum) is part of the comprehensive service package. There are many other school health programs not covered by this definition.

when more than one-fifth of our children live in poverty and a third grow up in ignorance."[9] I have recently estimated that fully one-fourth of this nation's 10–17-year-olds, or about seven million youngsters, are at multiple risks of early unprotected sexual intercourse, school failure, delinquency and substance abuse.[10] This group contains most of the children who are in urgent need of attention.

The link between school achievement and adolescent pregnancy is becoming more clearly articulated. In the past, dropping out of school was viewed as a consequence of teenage pregnancy. However, new data indicate that young people with low basic skills are much more likely than others to become parents, especially if they are in disadvantaged families.[11] A recent analysis found no significant differences between white, black and Hispanic teenagers in the probability of parenthood, once basic skills and poverty were accounted for.*[12]

The interrelatedness of problems among disadvantaged youth, the crippling effect of school failure and the growing gap between social classes in access to economic opportunities place a heavy burden on school systems. With dropout rates reaching 80 percent in some inner-city schools, school systems are more willing now than in the past to allow programs run by outside organizations to operate in the schools.[13] School administrators recognize that disadvantaged students need more support services than the schools themselves can supply. As one principal stated, "Anyone who thinks the schools are not social service agencies [is] fighting a rear-guard action."[14] Nathan Quinones, former chancellor of the New York City schools, called for the establishment of a comprehensive health clinic in every city school, because "it is no good to make progress in reading scores while students are psychologically and physically dying."[15]

This article summarizes the current status of comprehensive school-based clinics in the United States, focusing on the proliferation of facilities over the period 1985–1988, the lessons learned from this experience and the outlook for comprehensive school health services in the coming years.

Clinic Services

Currently, there are 138 comprehensive clinics operating in schools in 30 states and the District of Columbia, and at least 65 more clinics are known to be in the planning stage. Table 1 shows, by state, the distribution of the clinics operating in 1985, the clinics operating in 1988 and the clinics reported to be in the planning stage. Because no central authority funds, regulates or monitors school-based clinics, these counts are rough estimates based on the best data available.

As the table indicates, there does not seem to be any regional pattern to the distribution of clinics. Over the past three years, California, Maryland, Michigan, New Jersey, New Mexico, New York and Oregon have all experienced large increases in the number of clinic sites. In California, funds for the new clinics have come from a complex mix of public health and private foundation monies, whereas in the other states, the proliferation of clinics reflects the recent infusion of state health and human services funds and the increased utilization of Medicaid funds. In Arkansas and Louisiana, where there were no school-based clinics in 1985, funds for planning and operating new clinics have come from private foundations. In other states, such as Minnesota, Mississippi and Texas, there has been little or no change in the number of clinics in operation between 1985 and 1988.

While the clinic program in St. Paul, one of the first programs of its kind, is often regarded as the model for school-based clinics, each program is tailored to the needs and resources of the community it serves; consequently, programs differ widely in their organizational structure, operating costs and funding sources. They also vary in the number of clinic sites they operate, the extent of referral arrangements, clinic hours and, most significantly, the range of services they provide.†[17] The majority of the programs operate a single clinic; however, a few programs have as many as six clinics. At least 17 of the clinics operating in 1988 are situated in junior high schools.[18] About 85 percent of the clinics are located within school buildings and the remainder are adjacent to school grounds. The great majority of clinics (80 percent) are open during the entire school week, and nearly half maintain summer operations. About 18 percent have evening, weekend or emergency coverage by staff physicians, and 38 percent have backup arrangements with local hospitals for emergency care.

All school-based clinics have certain common elements: They all provide physical examinations and medical screenings on site; they all offer treatment for minor illnesses and accidents; and they all provide counseling on family planning and personal problems.[19] In addition, most clinics offer gynecologic examinations, refer patients to other providers for family planning and treatment of sexually transmitted diseases, offer prenatal care, refer for vision and hearing problems, provide nutrition and weight control counseling and offer mental health counseling. Some clinics distribute contraceptives on site, provide child care for teenage parents, offer job counseling, organize school remediation and mentoring programs or offer family counseling and social services.

Although the media have focused heavily on the provision of birth control in school-based clinics, in fact only 10–25 percent of all clinic visits are made for family planning services. Most clinic visits are for physical examinations or for treatment of minor medical problems such as colds, menstrual cramps and injuries due to accidents. Physical examinations are detecting a surprisingly high number of vision and hearing problems as well as other medical conditions, such as heart murmurs and respiratory diseases, that require referral to other health care providers. Because of the large number of students who have minor complaints or major problems, clinics are heavily utilized and often have difficulty keeping up with demand.

According to a survey carried out in 1987, 21 percent of clinics dispense birth control pills and condoms on site (following counseling and appropriate medical procedures, such as pelvic examinations and Pap smears); 48 percent offer gynecologic exams and prescribe contraceptives, but refer students to collaborating agencies for contraceptive supplies; and 31 percent provide birth control counseling and referrals only.[20] (An earlier survey, published in 1986, had reported that 28 percent of school-based clinics dispensed contraceptives, 52 percent prescribed contraceptives and 20 percent offered birth control counseling and referrals only.[21])

Organization and Funding

One of the least understood aspects of school-based clinic programs is their organizational structure. With few exceptions, school systems do not directly fund or operate clinics; local agencies establish the clinics, typically as satellites of ongoing health and social service programs.* The earliest programs were developed by individuals responding to particular needs in their communities. These pioneer programs were both created and administered by medical schools and their affiliated hospitals (the St. Paul and Dallas programs), by neighborhood health centers (Jackson, Miss.) or by nonprofit youth agencies (Kansas City, Mo.). Increasingly, however, programs are being initiated by local public health departments supported by state funds. The newer programs are often operated by nurse practitioners who double as administrators and clinicians.

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*Among women aged 16–19 with low basic skills living in poor families, 21 percent of whites, 23 percent of blacks and 21 percent of Hispanics had given birth to a child; among women in the same age-group with at least average skills living in nonpoor families, three percent of whites, three percent of blacks and five percent of Hispanics had given birth.

†Much of the information about clinics is from a 1987 survey of 35 programs operating 50 clinics. (See: S. Lovick [ref. 17].)

A 1986 survey of school-based clinic programs found that 33 percent of grantee agencies are hospitals, 23 percent are health departments, 20 percent are nonprofit youth agencies, 17 percent are community health centers, four percent are schools and three percent are family planning agencies.[22] However, the organizing agency often contracts with other community agencies to provide specialized medical services, mental health counseling, substance abuse counseling, health education, family planning or services for teenage parents.

School systems have begun to play a more assertive role in the initiation of clinics in response to the complex needs of their students. School principals play the key role in gaining approval for the project, allowing program operators to come into the schools and ensuring acceptance and utilization of the clinic.[23]

Almost all school-based clinics require that parents sign a consent form. In most cases, consent covers all services available through the clinic. In some clinics, the consent form advises parents that state laws prohibit clinic staff from informing parents of particular treatments, but in a few other sites, the consent form allows parents to prohibit certain treatments.[24] Although most programs actively encourage the participation of parents in the planning stage and attempt to keep parents informed of clinic activities, few parents actually attend information meetings. (Several polls show a high level of support for school-based clinics. Of 1,000 adults surveyed in North and South Carolina, nearly four out of five favor the establishment of health clinics in public schools, with the strongest support coming from minorities [91 percent] and lower income adults [84 percent].[25] The Harris Poll has reported that 69 percent of all parents favor requiring public schools to establish links with family planning clinics so that teenagers can learn about contraceptives and obtain them.[26] In New York City, 98 percent of the parents of students in schools with clinics said they wanted a health clinic in their child's school; 85 percent said they wanted the clinic to provide family planning counseling; and 61 percent said they wanted the clinic either to supply contraceptives or to provide prescriptions for contraceptives.[27])

On average, an estimated 71 percent of the students in schools that have clinics are enrolled in the clinics.[28] In the Dallas program, 85 percent of the eligible students were enrolled in the clinic, and a total of 11,000 visits were recorded in a recent year.[29] Costs per client at school-based clinics are roughly estimated to be between $150 and $250 per year, and caseloads average about 1,000, yielding an annual estimated cost of about $200,000 for clinic operations.[30] However, the range of expenditures varies considerably according to the services offered, the size and location of the school, state policies on reimbursement and the amount of contributed staff time and equipment. One study found that the average cost of a routine physical examination in a Delaware school-based clinic was $11, compared with $45 for a visit to a private physician's office.[31] In contrast, a clinic in New York City anticipated a cost of $75 per clinic encounter. [32]

Many of the earlier clinics were launched with private foundation support but were forced to seek public funding after they grew out of the demonstration phase. Funding for other clinics has shifted from the public to the private nonprofit sector; for example, the St. Paul program, formerly part of the hospital-based St. Paul Maternal and Infant Care Project, has incorporated privately as Healthstart in order to have more flexibility in applying for grants. At the same time, some foundations are funding new school-based programs with substantial multiyear grants that generally require matching funds from the community. The Robert Wood Johnson Foundation, for example, has divided up $16.8 million for comprehensive services among its 23 new grantees, which averages about $730,000 per grantee spread over five years.[33] The Annie E. Casey Foundation recently launched a program that awarded five cities $10 million each to develop "an integrated assault on the major problems of at-risk youth . . . dropout rates, youth unemployment, and adolescent pregnancy."[34] And a number of other private organizations, including the Carnegie Corporation, the Willam T. Grant Foundation, The John D. and Catherine T. MacArthur Foundation and the Henry J. Kaiser Family Foundation, are developing broad programs that address high-risk adolescent behaviors. Many of these programs include pregnancy prevention as one of their goals, and school-based clinics as the preferred delivery mechanism.

Table 1. Distribution of comprehensive school-based clinics in the United States by state, 1985 and 1988

State	Year and status		
	1985 operational	1988 operational	1988 planning stage
Alabama	0	1	1
Arizona	0	3	0
Arkansas	0	0	2
California	0	7	2
Colorado	0	5	0
Connecticut	3	5	4
Delaware	0	1	0
District of Columbia	0	0	0
Florida	0	1	2
Illinois	1	5	1
Indiana	1	2	0
Louisiana	0	3	0
Maine	0	2	0
Maryland	0	7	0
Massachusetts	0	2	5
Michigan	4	8	15
Minnesota	8	10	0
Mississippi	5	6	0
Missouri	3	4	0
Montana	0	2	0
New Jersey	0	19*	0
New Mexico	0	9	0
New York	5	14	20
North Carolina	0	3	1
Ohio	0	1	0
Oregon	0	8	0
Pennsylvania	0	1	3
South Carolina	0	1	0
Tennessee	0	3	0
Texas	2	2	0
Virginia	0	1	0
Washington	0	1	3
Wisconsin	0	1	5
Total	**32**	**138**	**65**

*Nineteen of 29 programs include family planning.

Sources: **All states except Massachusetts and New Jersey**—W. F. Wesson, Support Center for School-Based Clinics, personal communication, June 7, 1988; **Massachusetts**—J. Gorbach, Massachusetts Department of Health, personal communication, Apr. 26, 1988; **New Jersey**—Handout at *School Based Youth Service Program: Profile of Funded Projects*, meeting prepared by the New Jersey Department of Human Services.

In recent years, several states have initiated comprehensive programs directed at high-risk youth, and other states have made appropriations specifically earmarked for funding school-based clinics. For example, the New Jersey Department of Human Services is providing funds to

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*The Gary (Ind.) Community School Corporation is one school group that operates its own clinic.

29 communities to operate school-based youth services programs in order to address such problems as high teenage unemployment rates, family breakup and mental illness, suicide, teenage pregnancy, welfare dependency, high school dropout rates and health problems, including drug and alcohol use.[35] Nineteen of the projects offer family planning services. The proposed strategy emphasizes early intervention, family involvement and the provision of comprehensive services in a single accessible site. Many agencies in Oregon are involved in the state's Initiative on Youth, which focuses on education to prevent school dropout and alcohol and drug abuse and on provision of health and mental health services, family services and services to teenage parents.[36] As part of the Initiative on Youth, the Oregon State Health Division is currently funding eight school-based clinics, with more expected to open in the future. Michigan probably leads the country in stimulating the development of clinics; its Task Force on Adolescent Pregnancy is promoting the establishment of 100 clinics throughout the state,[37] 23 of which are already in operation or are being planned.

Most of the state-funded school-based clinics either prohibit the use of funds for contraceptive supplies and abortion referral or allow grantees to decide what to do about the issue of pregnancy prevention. For example, the New Jersey program description states, "Family planning services may be provided at local option. However, state funds under the School Based Youth Services Program cannot be used to pay for contraceptives and abortion services."[38] The Oregon Initiative on Youth announcement says, "[School clinics] counsel and care for pregnant teens. They do *not* perform abortions. They do *not* dispense contraceptives."[39] In Michigan, the legislature simultaneously approved $1.25 million for school clinics and imposed a 25 percent state aid penalty on clinics that dispense contraceptives or make referrals for abortion.

The current total level of public funding for school-based clinics is unknown, but in 1986, prior to several of the new state initiatives, almost two-thirds of all funding came from public sources.[40] About 27 percent of the funds came from federally funded, state-operated Maternal and Child Health Services block grants, 16 percent came from state health demonstration projects and 14 percent were from the Early and Periodic Screening, Diagnosis and Treatment program of Medicaid. Other sources of federal funding that were being used at the local level included the Community and Migrant Health Centers program, the Social Services Block Grant program (Title XX) and the Family Planning Services program (Title X). Although in every year since 1985, bills have been introduced in Congress to set aside $50 million for demonstration projects of school-based comprehensive health services, none of these bills have moved out of committee thus far, despite support from a long list of national youth service organizations.

A prospective funding source for school-based clinics is the Youth 2000 program, the current administration's effort "to assist young people at risk of not making a successful transition" from school to work.[41] The program, a joint undertaking of the Department of Health and Human Services and the Department of Labor, awarded grants totaling $3.48 million to selected state and local grantees. None of the projects funded were focused on primary pregnancy prevention; however, the New Jersey School-Based Youth Services Program received funds to establish a Youth Technical Assistance Center (to support the comprehensive school centers) and 12 other states received grants for planning efforts, policy analysis, data collection and state and local conferences. Many states are in the process of planning comprehensive youth-at-risk initiatives, and school-based clinics are one of the program models under consideration.

Program Evaluation

Three years ago, no conclusions about the efficacy of school-based clinic programs as pregnancy prevention interventions could be drawn because of the lack of reliable impact evaluation data. Unfortunately, the situation has changed little since then, mainly because evaluating the impact of school-based clinics on changes in reproductive behavior presents difficult methodological problems. An evaluation of clinic programs in seven sites was launched in 1985 by the Center for Population Options; unpublished preliminary findings suggest that those selected school-based clinic programs had no significant effect on pregnancy rates or birthrates.[42] There is, however, an increasing body of data from other sources about students' sexual activity, contraceptive use, substance abuse and other behaviors.

One of the concerns raised by opponents of school-based clinics is that the existence of clinics in the schools might encourage adolescent sexual activity. However, research to date has yielded no evidence that rates of sexual activity increase among students who participate in clinic programs. A survey carried out in Kansas City two years after the opening of a school clinic there revealed almost no change in reported sexual activity among clinic users.[43] An evaluation of a three-year school and clinic demonstration project in Baltimore found that students exposed to the program for three years postponed first intercourse an average of seven months longer than did those not exposed to the program.[44]

Growing evidence suggests that participation in school-based clinics may have a positive impact on contraceptive practice. A survey carried out in a Houston school found that compared with students who did not attend the school clinic, those who did attend were more than twice as likely to use contraceptives every time they had sex and were less than half as likely never to use contraceptives.[45] Among sexually active students in Kansas City, clinic enrollees showed higher rates of contraceptive use than did those not enrolled; further, there was a striking increase in the use of condoms among male clinic patients.[46] In the Baltimore demonstration project, younger students in the experimental schools were much more likely than those in the control schools to use birth control.[47] And in St. Paul, there was an extremely high rate of method continuation among female students who obtained contraceptives at school clinics: After one year of clinic services, 91 percent were still using the method prescribed at the clinic (mostly the pill), and after two years, 78 percent were doing so.[48] (In comparison, freestanding family planning clinics report a 12-month program dropout rate of close to 50 percent.[49])

Although there is no conclusive evidence showing that school-based clinic utilization lowers pregnancy rates or birthrates, three years ago, data based on the experience of students in the high schools participating in the St. Paul program showed a decline in fertility rates from 59 births per 1,000 female students in 1976–1977 to 26 per 1,000 in 1983–1984. More recent data show that the birthrate rose to 37 per 1,000 in 1984–1985, and then decreased slightly in 1985–1986, to 35 per 1,000.*[50] Thus, the sharp decline in the birthrate observed during the early years

(Continued on page 198)

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*According to local sources, the rise in the birthrate in St. Paul reflected the inmigration and school enrollment of Hmongs from Vietnam, many of whom have babies at young ages. (L. Edwards, director of Health-start, Inc., personal communication, 1986.)

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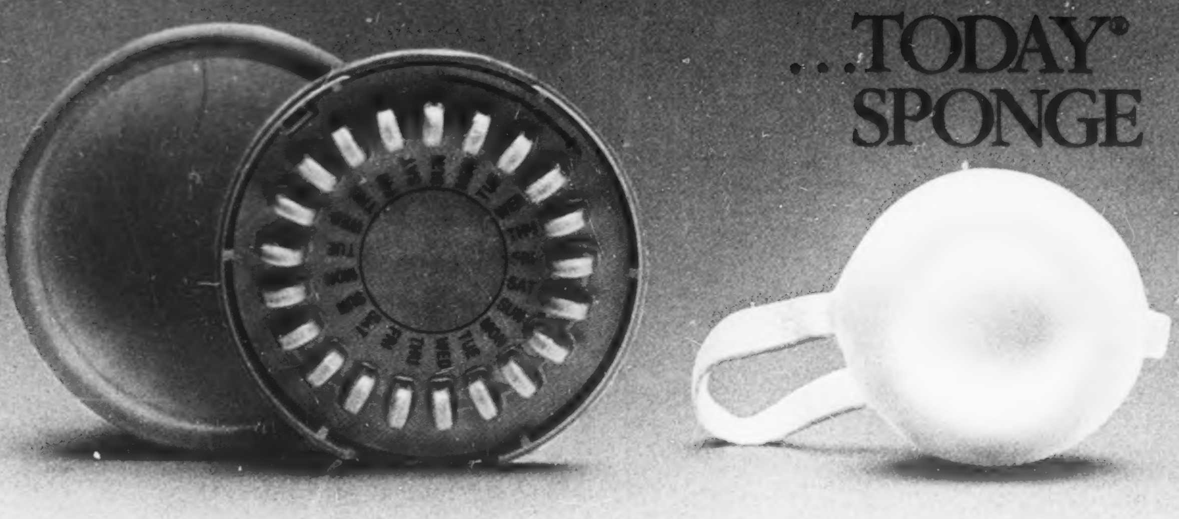

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2. *Today® Vaginal Contraceptive Sponge: A Technical Review*. Irvine, Calif, VLI Corporation, 1986.

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of the program has been maintained, with relatively low annual birthrates ever since. The only program evaluation to date that has linked a school-based program to reductions in pregnancy rates was the one carried out in Baltimore.[51] However, in this demonstration project, medical services were not provided in the schools—students were counseled in school and referred to a nearby clinic. The study found that pregnancy rates among students in program schools dropped by 30 percent during the same period that the rates rose by 58 percent in control schools.

Lessons Learned and Future Issues

School-based clinics present a number of organizational problems. Organizing a school clinic is a long and complex process involving consultation with and approval from officials of the school system and the principal at the school site; packaging of services, usually from several agencies; formation of a community advisory board; performance of a needs-assessment survey of students; remodeling of school space; securing of funding; hiring of appropriate staff; establishment of medical protocols; and receipt of parental consent. Since very few communities are able to put all of these components together without assistance from the outside, a number of organizations that provide technical assistance to new programs have been established. Among these are the Support Center for School-Based Clinics (Center for Population Options) in Houston, the Center for Reproductive Health Policy at the University of California, San Francisco, and the School-Based Adolescent Health Care Program organized by the Robert Wood Johnson Foundation in Washington, D.C.

Community support is so essential to clinic success that initiators are advised to spend a minimum of one year in preparation.[52] Advisory committees must be established that include parents, community leaders, school personnel and others. Within the school itself, personnel must be given a sense of clinic "ownership." Although school nurses have felt displaced by the clinics in some systems, about half of the programs have enlisted their active participation and incorporated them into their activities.[53] Clinic staff need to expend considerable effort to involve other school personnel—school counselors, special-education teachers, regular teachers and custodians—in the program as advisers, referral agents and supporters.

Administrators report difficulty recruiting nurse practitioners and social workers, the primary staff team for most clinics. Qualifications for employment in school clinics may include the ability to speak a second language, clinical experience, sensitivity to cultural differences and a strong commitment to working with teenagers. Although the salary scale for clinic staff nurses is generally higher than that for school nurses, the responsibilities of the nurse practitioner may include administration, research, community relations, parent outreach and other nonnursing duties. Further, the intensity and immediacy of the problems encountered by clinic staff often create unanticipated demands on their time. The high reported incidence of sexual abuse, for example, requires intensive counseling, family involvement and collaboration with the appropriate social agencies.

Parental consent is another thorny issue. According to a statement prepared by the National Conference of Catholic Bishops, "The threat posed to parents' rights by school-based contraceptive clinics seems evident, since one reason for locating these clinics in schools is to gain access to teenagers without their parents' involvement."[54] On the other side of the issue, reproductive health care advocates have expressed concern that the parental consent requirement represents a step backward for reproductive rights. As one legal authority stated, "Parental involvement should not be mandated, legislated or coerced because doing so creates unacceptable barriers to necessary and beneficial health care."[55]

In fact, one of the problems frequently encountered by clinic personnel is the *lack* of parental involvement. Although clinic staff report that few parents deny their consent for clinic services of any kind, parents' failure to return consent forms has resulted in low clinic enrollment rates in some communities. Interviews with the parents of eligible students who failed to enroll in a New York City program revealed that 81 percent said they never received the consent form or thought they had signed it, 10 percent were satisfied with their current health providers and only three percent did not enroll their child because they did not like the clinic.[56]

In addition to organizational difficulties, a number of problems have been encountered in the evaluation of school-based clinics. Because school-based clinics are controversial, the issue of their impact appears to receive more attention than it does in other programs. For example, we do not know how effective the "just say no" antidrug program is. In fact, there are very few model health or juvenile delinquency prevention programs for which long-term impacts have been reported.

The "ideal" research design for measuring program-related changes in pregnancy rates would include random assignment of students to treatment and nontreatment groups with longitudinal pretesting and posttesting among both groups. However, random assignment is not possible in school clinic settings, and it is often difficult to match experimental schools with control schools on important dimensions such as student achievement levels and dropout rates. Although pretests and posttests are relatively simple to design, administering questionnaires in school settings has turned out to be a much more difficult assignment than expected.

A number of researchers involved in the evaluation of school clinics report that the major problem in measuring program impact is the small proportion of the student body who actually utilize specific clinic services.[57] For example, if only 20 students use the clinic for weight reduction, 10 might be successful, yielding a high success rate for those students. But if the number of students who lose weight in the program during a year were used as the numerator, and the entire student body were used as the denominator, no effect would be shown. Studies that compare changes among clinic users with those among clinic nonusers in the same school are more likely to show positive results (as was the case in the Kansas City program discussed above).

In the near future, more descriptive data on school clinic programs are expected from a standardized management information system that will produce a wide range of information about patients, visits and diagnoses. This data base was developed by the Center for Population Options for nationwide use and is already being used in Illinois and California. Due to the difficulties in accurately measuring long-term outcomes (pregnancies prevented, for example), clinic goals may have to be redefined in terms that can be more easily documented. Suggested outcome measures include the increase in the proportion of students using clinics who seek contraceptives prior to the onset of sexual activity; the improvement in consistency of contraceptive use; the decrease in reliance on hospital emergency rooms; and the likelihood of seeking treatment for medical conditions detected through clinic screenings.[58]

Despite the continuing debate over school-based clinics, the movement to make comprehensive health, social and family services accessible to school populations is very strong. The drive toward more coordinated, linked services, with schools as the central focus, is propelled by new, large-scale youth-at-risk initiatives sponsored by states and foundations. Further, a consensus is forming around the concept that disadvantaged high-risk children need access to better health care in order to succeed in school.

It is important to acknowledge, however, that public funding for comprehensive school health services may result in diminished support for contraceptive services in the schools. The more recent cohort of clinics are less likely to dispense contraceptives or even to prescribe them than were the earlier models. According to David Gurule, former program manager of the Oregon State Health Division, "Many school-based clinics have a very broad mandate for the amelioration of adolescent health and social problems, while the services available are often severely restricted because of community sensitivity to issues, most notably teenage sexuality and birth control."[59] In Oregon, Gurule found the differences between the level of family planning effort in the clinics and the demand for birth control "startling": In the four school clinics that offered contraceptive prescriptions, 9–19 percent of the service requests were for family planning services, whereas in the four clinics that were allowed to provide only information and counseling, but no prescriptions, fewer than three percent of the visits included requests for family planning information.[60]

It is difficult to predict how the level of family planning effort in school-based programs will be affected by the rising threat of AIDS. Clearly, attitudes toward the delivery of sex education and reproductive health care are undergoing rapid changes as a result of the AIDS crisis. At least 17 states now mandate instruction in AIDS prevention, and the majority of the remaining states are in the process of developing curricula.[61] Only a few weeks after the National Conference of Catholic Bishops released a statement strongly advocating the teaching of abstinence, the group issued a new statement acknowledging "that some people will not act as they can and should; that they will not refrain from the type of sexual or drug abuse behavior which can transmit AIDS. In such situations, educational efforts . . . could include accurate information about prophylactic devices or other practices proposed by some medical experts as potential means of preventing AIDS."[62]

Because of AIDS, every community will soon have to make hard decisions about giving young people accurate information and access to the means of prevention. School-based clinics may be well-positioned to take on this responsibility by developing programs that combine sexuality education, counseling and comprehensive health services, including the provision of condoms.

Attention must also be paid to developing the management skills of clinic personnel, because assuring the continuity of programs and funding demands a great deal of time and expertise. Currently, there are no programs to train school clinic administrators, although it has been recommended that all clinics hire an administrator for at least the first year of operations.[63] Nursing schools and schools of public health may have to develop specialized curricula to meet these emerging needs. In the meantime, technical assistance workshops will have to expand their scope to respond to growing demand.

Whereas the pioneer clinic programs were developed by individuals responding to particular needs in their community, increasingly, programs are being initiated in response to state or foundation requests for proposals. Despite this push toward a kind of conformity, the most significant characteristic of school-based clinics remains their diversity and the decentralization of authority. Only one organizing principle prevails—the urgent need for a multitude of services aimed at disadvantaged young people in schools.

There is no consensus among advocates of school-based clinics about what kind of bureaucratic structure would further the expansion of this model. Should there be a new federal categorical program for school-based health services? Should school-based clinics be part of a larger program, both inside and outside of schools, that addresses adolescent health needs in general? Or should all of these health efforts be subsumed under broad youth-at-risk initiatives that link school remediation, health and social services, and job training and employment? In any or all of these structures, would family planning be a mandated service?

A strong case can be made for noninterference in a diffusion process that is working well, assuming that states and foundations will increase their levels of funding. On the state level, the leadership and support of the governor may be the key to clinic expansion. However, a case can also be made for moving toward a more centralized federal program that could provide long-term funding and legitimation. Such a program could promulgate national standards to maintain quality of services, ensure that funds are distributed according to needs, address training issues and facilitate uniform data collection. Whatever approach is taken, it is probable that school-based clinics will increasingly be recognized as a viable model for service delivery.

After several years of experience, the question still remains: Do school-based clinics hold promise for pregnancy prevention? Evidence from the field suggests that the performance of clinics in regard to sexuality issues varies widely. Many clinics pay only a minimum of attention to family planning because of perceived or actual school or community constraints, state funding restrictions or ambivalent attitudes on the part of the staff. Where family planning is perceived as a service integral to comprehensive clinics and the staff is committed to the prevention of pregnancies, utilization of school clinics for family planning services is much higher. However, even when programs are heavily utilized for birth control services, counseling and referral, it has proven difficult to document their impact on pregnancy rates.

Based on the enthusiastic response to school-based clinics among students, school personnel, parents, health professionals and community leaders, it is clear that such programs hold promise for enhancing the quality of life for disadvantaged youngsters. In this broad sense, access to a wide range of needed health and social services may strengthen students' chances of succeeding in school, entering the labor force and delaying parenthood until a later time. Nevertheless, those who are concerned specifically with the issue of pregnancy prevention must bear in mind that school-based clinics are not the only appropriate vehicle for birth control services. Adolescents and others still need access to community-based family planning services, community education on sexuality issues and other kinds of family planning programs.

The focus on collaborative health and social service projects in the schools is a function of the heightened concern about the deteriorating social environment and its consequences for disadvantaged children. In light of current preoccupations and past experience, it appears that the future of comprehensive school-based clinics does not hang on the ability of the opposition to block their development.

Rather, the future rests on the adequacy of funding, the resolution of policy issues at the local level and the availability of trained managers and health practitioners. The continued growth of the school-based clinic movement will require strong advocacy, documentation of benefits, coalition-building and leadership. Although the incipient movement has not yet fully developed all of these attributes, the potential clearly exists.

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ORAL CONTRACEPTIVE (O.C.) AGENTS

Indications Prevention of pregnancy. *DOSE-RELATED RISK OF THROMBOEMBOLISM*. Because studies have shown a positive association between OC estrogen dose and risk of thromboembolism, it is prudent to minimize estrogen exposure. Prescribe an OC with the least amount of estrogen compatible with an acceptable pregnancy rate and patient acceptance. Start new users on OCs containing 0.05 mg or less of estrogen.

Contraindications 1. Known or suspected pregnancy (see Warning #5). 2. Thrombophlebitis or thromboembolic disorders. 3. Past history of deep vein thrombophlebitis or thromboembolic disorders. 4. Undiagnosed abnormal genital bleeding. 5. OCs should not be used by women who have or have had any of the following: a. cerebral vascular or coronary artery disease, including myocardial infarction; b. known or suspected carcinoma of the breast; c. known or suspected estrogen dependent neoplasia; d. benign or malignant liver tumor that developed during use of OCs or other estrogen containing products.

> **WARNINGS: Cigarette smoking increases the risk of serious cardiovascular side effects from OC use. This risk increases with age and with heavy smoking (15 or more cigarettes per day) and is quite marked in women over 35 years of age. Women who use OCs should be strongly advised not to smoke.**
>
> The use of OCs is associated with increased risk of several serious conditions including thromboembolism, stroke, myocardial infarction, liver tumor, gall bladder disease, visual disturbances, fetal abnormalities, and hypertension. Practitioners prescribing OCs should be familiar with the following information relating to these risks.

1. *Thromboembolic Disorders and Other Vascular Problems*. An increased risk of thromboembolic and thrombotic disease associated with OC use is established. One study demonstrated an increased relative risk for fatal venous thromboembolism and several studies demonstrated it for non-fatal venous thromboembolism. They estimate that OC users are 4-11 times more likely than nonusers to develop these diseases without evident cause. One British study reported an excess death rate of 40% in OC users, most of which resulted from cardiovascular disease. Another British study showed a lower death rate in OC users than controls; an increase in cardiovascular deaths was seen but was not statistically significant. A U.S. prospective study failed to disclose increased mortality rates from cardiovascular disorders, but a subset analyzed as a retrospective, case-control study showed significant increases in venous thromboembolism. CEREBROVASCULAR DISORDERS. Two American studies demonstrated an increased relative risk for stroke not shown in prior British studies. In an American study of cerebrovascular disorders in women with and without predisposing causes, relative risk of hemorrhagic stroke was estimated as 2.0 times greater and thrombotic stroke as 4-9.5 times greater in users than nonusers. A British long-term follow-up study reported in 1976 a highly significant association between OC use and stroke. Another study had suggested an association in 1974, but the number of cases was too small to estimate the risk. Subarachnoid hemorrhage has been shown to be increased by OC use in British and American studies. Smoking alone increases incidence of these accidents; smoking and pill use appear to increase risk more than either alone.

MYOCARDIAL INFARCTION (MI). Increased relative risk of MI associated with OC use has been reported. One British study found that the greater the number of underlying risk factors for coronary artery disease (cigarette smoking, hypertension, hypercholesterolemia, obesity, diabetes, history of preeclamptic toxemia) the higher the risk of developing MI, regardless of OC use. OCs were an additional risk factor. In terms of relative risk, it has been estimated that nonsmoking OC users (smoking is considered a major predisposing condition to MI) are twice as likely to have a fatal MI as nonsmoking nonusers. OC users who are smokers have a 5-fold increased risk of fatal infarction compared to nonsmoking users, and a 10-12-fold increased risk compared to nonsmoking nonusers. The number of cigarettes smoked is important. In determining the importance of these relative risks, baseline rates for various age groups must be considered. (Estimates are based on British vital statistics which show acute MI death rates 2-3 times less than in the U.S. so U.S. death rates could be higher.) Importance of other predisposing conditions in determining relative and absolute risks has not been quantified; other synergistic actions may exist. RISK OF DOSE. Using data from several national adverse reaction reporting systems, British investigators concluded that risk of thromboembolism, including coronary thrombosis, is directly related to estrogen dose in OCs. OCs with 0.1 mg or more of estrogen were associated with a higher risk of thromboembolism than those containing 0.05-0.08 mg but quantity of estrogen may not be the sole factor. This was supported by a U.S. study. A British study found a positive association between dose of progestogen or estrogen and certain thromboembolic conditions. Swedish authorities noted decreased reporting of thromboembolic episodes when higher estrogen preparations were no longer prescribed. Careful epidemiological studies to determine degree of thromboembolic disease risk associated with progestogen-only OCs have not been done. Thromboembolic disease has been reported in women using these products, and they should not be considered free of excess risk. PERSISTENCE OF RISK. Two studies have suggested an increased risk may persist for 6 years after discontinuation of OC use for cerebrovascular disease and 9 years for MI; another study suggested the persistence of risk for subarachnoid hemorrhage. ESTIMATE OF EXCESS MORTALITY FROM CIRCULATORY DISEASES. A large British prospective study estimated mortality rate per 100,000 women per year from circulatory system diseases for OC users and nonusers according to age, smoking habits, and duration of use. The overall annual excess death rate for OC users was estimated to be 20/100,000 (ages 15-34 – 5/100,000, ages 35-44 – 33/100,000, ages 45-49 – 140/100,000). Risk is concentrated in long-term users and in smokers, and may persist after OC discontinuation. Although the study showed a 10-fold increase in death due to circulatory diseases in users for 5 or more years, all occurred in women 35 or older. An update provided the following rates: ages 15-34 – 1/6700 for nonsmokers and 1/2000 for smokers; ages 45 and over – 1/2500 for nonsmokers and 1/500 for smokers. Risk appeared to increase with parity, but not with duration of use. Until more women under 35 with continuous use for 5 or more years are available, it is not possible to assess relative risk for this age group. Data from a variety of sources have been analyzed to estimate the risk of death associated with various methods of contraception. Estimates include combined risk of the contraceptive method (e.g., thromboembolic and thrombotic disease for OCs) plus risk attributable to pregnancy or abortion if the method fails (which varies with the effectiveness of the contraceptive method). The study concluded that mortality associated with all contraceptive methods is below that of childbirth, except for OCs in women over 40 who smoke. (Rates given for pill only/smokers for each age are for smokers as a class. For "heavy" smokers (more than 15 cigarettes a day), the rates would be about double; for "light" smokers (less than 15), about half.) The lowest mortality is with the condom or diaphragm backed up by early abortion. The study also concluded that OC users who smoke, especially over 30, have greater mortality risk than OC users who do not smoke.

Risk of thromboembolic and thrombotic disease associated with OCs increases with age after 30 and for MI is further increased by hypertension, hyperlipidemias, obesity, diabetes, or history of preeclamptic toxemia, and especially by smoking. The following chart gives a gross estimate of risk of death from circulatory disorders associated with OC use.

SMOKING HABITS AND OTHER PREDISPOSING CONDITIONS – RISK ASSOCIATED WITH USE OF OCs

Age	Below 30	30-39	40 +
Heavy smokers	C	B	A
Light smokers	D	C	B
Nonsmokers (no predisposing conditions)	D	C,D	C
Nonsmokers (other predisposing conditions)	C	C,B	B,A

A – Use associated with very high risk
B – Use associated with high risk
C – Use associated with moderate risk
D – Use associated with low risk

Physician and patient should be alert to earliest manifestations of thromboembolic and thrombotic disorders (e.g., thrombophlebitis, pulmonary embolism, cerebrovascular insufficiency, coronary occlusion, retinal thrombosis, and mesenteric thrombosis). Should any of these occur or be suspected, discontinue OC immediately. A 4-6 fold increased risk of post-surgery thromboembolic complications has been reported in OC users. If feasible, discontinue OCs at least 4 weeks before surgery associated with increased risk of thromboembolism or prolonged immobilization. Before resuming OC after major surgery or bedrest, balance risks of post-surgery thromboembolic complications with contraceptive needs. Data suggest varicose veins substantially increase risk of superficial venous thrombosis of the leg, the risk depending on the severity of the varicosities. 2. *Ocular Lesions*. Neuro-ocular lesions such as optic neuritis or retinal thrombosis have been associated with OC use. Discontinue OC if there is unexplained, sudden, or gradual, partial or complete loss of vision, onset of proptosis or diplopia, papilledema, or retinal vascular lesions, and institute appropriate diagnostic and therapeutic measures. 3. *Carcinoma*. Long-term continuous administration of natural or synthetic estrogen in certain animals increases certain tumors, benign or malignant, such as breast, cervix, vagina, uterus, ovary, pituitary and liver. Certain synthetic progestogens, none currently in OCs, increase the incidence of mammary nodules, benign and malignant, in dogs. Several retrospective case-control studies reported an increased relative risk (3.1-13.9 times) associating endometrial carcinoma with the prolonged use of estrogens in postmenopausal women. One publication reported the first 30 cases submitted to the registry of cases of adenocarcinoma of the endometrium in women under 40 on OCs. Of the adenocarcinomas found in women without predisposing risk factors for adenocarcinoma of the endometrium (e.g., irregular bleeding when OCs were first given, polycystic ovaries), nearly all occurred in women who had used sequential OCs, which are no longer marketed. No statistical association has been reported suggesting an increased risk of endometrial cancer in users of conventional combination or progestogen-only OCs, although individual cases have been reported. Studies have shown no increased risk of breast cancer to OC or estrogen users. One study found no overall increased risk of breast cancer in OC users but a greater risk was suggested for OC users with documented benign breast disease and for long-term (2-4 years) users. Another study found a history of breast cancer among grandmothers or aunts was significantly more frequent among breast cancer patients who had used an OC continuously for one or more years than among nonusers with breast cancer. One other study indicated an increasing risk of breast cancer in women taking menopausal estrogens, which increased with duration of follow-up. One author suggests that extended (over 6 years) OC use prior to first full term pregnancy was associated with a significant relative risk of breast cancer. A reduced occurrence of benign breast tumors in OC users has been well documented. One study reported malignant melanoma more frequently in OC users than controls and suggests an increased incidence of urinary tract and thyroid cancers. A prospective study of women with cervical dysplasia found an increase in severity and conversion to cancer *in situ* in OC users compared to nonusers. This became statistically significant after 3-4 years of use. Nonreversal of dysplasia within the first 6 months of pill use was suggested to predict progression after prolonged exposure. One study disclosed an increased risk of cancer of the cervix (largely carcinoma *in situ*) in OC users under 40, particularly those who had used OCs over 4 years. There have been other reports of microglandular hyperplasia of the cervix in OC users. One study reported an association between OC use and endocervical adenocarcinoma. In summary, there is no confirmed evidence from human studies of increased risk of cancer associated with OCs. Close clinical surveillance of all OC users is, nevertheless, essential. In all cases of undiagnosed persistent or recurrent abnormal vaginal bleeding, take appropriate diagnostic measures to rule out malignancy. Monitor OC users with a strong family history of breast cancer or who have breast nodules, fibrocystic disease or abnormal mammograms with particular care. 4. *Liver Tumors*. Sudden severe abdominal pain or shock may be due to rupture and hemorrhage of a liver tumor. There have been reports associating benign or malignant liver tumors with short-term and long-term OC use. One study reported use of OCs with high hormonal potency and age over 30 may further increase risk of hepatocellular adenoma. Two studies relate risk with duration of use, risk being much greater after 4 or more years of use. Long-term OC users have an estimated annual incidence of hepatocellular adenoma of 3-4/100,000. Although an uncommon lesion, it should be considered in women presenting with an "acute abdomen". The tumor may cause serious or fatal hemorrhage. Patients with liver tumors have demonstrated variable clinical features which may make preoperative diagnosis difficult. Some cases presented because of right upper quadrant masses, while most had signs and symptoms of acute intraperitoneal hemorrhage. Routine radiological and laboratory studies may not be helpful. Liver scans may show a local defect. Hepatic arteriography may be useful in diagnosing primary liver neoplasm. 5. *Use in or Immediately Preceding Pregnancy, Birth Defects in Offspring, and Malignancy in Female Offspring*. Use of female sex hormones – estrogenic and progestational agents – during early pregnancy may seriously damage the offspring. Females exposed *in utero* to diethylstilbestrol, a nonsteroidal estrogen, have an increased risk of developing in later life a form of vaginal or cervical cancer that is ordinarily extremely rare. This risk has been estimated to be of the order of 1/1000 exposures or less. Although there is no evidence that OCs further enhance the risk of developing this type of malignancy, such OC users should be monitored with particular care. A high percentage of women exposed to diethylstilbestrol (30-90%) have epithelial changes of the vagina and cervix. Although these changes are histologically benign, it is not known whether they are a precursor of vaginal malignancy. Male children so exposed may develop urogenital tract abnormalities. Although similar data are not available on other estrogens, it cannot be presumed that they would not induce similar changes. Increased risk of congenital anomalies, including heart and limb defects, has been reported following use of sex hormones, including OCs, in pregnancy. One case-control study estimated a 4.7-fold increased relative risk of limb-reduction defects in infants exposed *in utero* to sex hormones (OCs, hormonal withdrawal tests for pregnancy or attempted treatment for threatened abortion). Some exposures involved only a few days of treatment. Data suggest risk of limb-reduction defects in exposed fetuses is somewhat less than 1/1000 live births. In a large prospective study, cardiovascular defects in children born to women who received female hormones, including OCs, during early pregnancy occurred at 18.2/1000 births, compared to 7.8/1000 for children not so exposed *in utero*. These results are statistically significant. A Welsh study found a statistically significant excess of neural tube defects among offspring of prior OC users (within 3 months) than among controls. The incidence of twin births may be increased for women who conceive shortly after discontinuing OC use. In the past, female sex hormones were used during pregnancy in an attempt to treat threatened or habitual abortion. There is evidence that estrogens are ineffective, and there is no evidence from well controlled studies that progestogens are effective for these uses. There is some evidence that triploidy and possibly other types of polyploidy are increased among abortuses from women who become pregnant soon after ceasing OCs. Embryos with these anomalies are virtually always aborted spontaneously. Whether there is an overall increase in spontaneous abortion of pregnancies conceived soon after stopping OCs is unknown. If the patient has not adhered to the prescribed schedule, consider possible pregnancy at the first missed period (or 45 days from the last menstrual period if progestogen-only OCs are used) and discontinue OC use until pregnancy has been ruled out. For any patient who has missed two consecutive periods, rule out pregnancy before continuing the OC. If pregnancy is confirmed, tell the patient about potential risks to the fetus and discuss advisability of continuing the pregnancy. Women who discontinue OCs to become pregnant should use an alternate form of contraception for a period of time before attempting to conceive. A 3-month period is supported by a study suggesting increased frequency of neural tube defects in women impregnated during the first 3 months after cessation of OC use. Do not use progestogen-only or progestogen-estrogen combinations to induce withdrawal bleeding as a pregnancy test. 6. *Gall Bladder Disease*. Studies report increased risk of gall bladder disease in OC or estrogen users. In one study, an increased risk appeared after 2 years of use and doubled after 4-5 years. In another study, an increased risk was apparent between 6 and 12 months. 7. *Carbohydrate and Lipid Metabolic Effects*. Because a decrease in glucose tolerance has been observed in a significant percentage of patients on OCs, prediabetic and diabetic OC users should be carefully observed. An increase in triglycerides and total phospholipids has been observed in OC users but its clinical significance is unknown. 8. *Elevated Blood Pressure*. An increase in blood pressure has been reported with OC use. Hypertension may occur within a few months of beginning OCs. In the first year of use, incidence of hypertension may be no higher in OC users than in nonusers. Incidence in users increases with exposure and in the fifth year of use is 2.5-3 times that in the first year. Age is strongly correlated with hypertension in OC users. Women with a history of elevated blood pressure (hypertension), preexisting renal disease, history of toxemia or elevated blood pressure during pregnancy, familial tendency to hypertension or its consequences," or history of excessive weight gain or fluid retention during the menstrual cycle may be more likely to develop elevated blood pressure when given OCs and should be monitored closely. Even though elevated blood pressure may remain within the "normal" range, closely watch elevations, particularly for women with other risk factors for cardiovascular disease or stroke. High blood pressure may or may not persist after OC discontinuation. 9. *Headache*. Discontinue OC and evaluate the cause of onset or exacerbation of migraine or development of a new pattern of headache which is recurrent, persistent, or severe. 10. *Bleeding Irregularities*. Breakthrough bleeding, spotting, and missed menses often make users discontinue OCs. In breakthrough bleeding, as in all cases of irregular bleeding from the vagina, consider nonfunctional causes. In undiagnosed persistent or recurrent abnormal bleeding from the vagina, use adequate diagnostic measures to rule out pregnancy or malignancy. If pathology has been excluded, time or another formulation may solve the problem. While potentially useful in minimizing menstrual irregularity, change to an OC with a higher estrogen content only if necessary since this may increase the risk of thromboembolic disease. Women with a history of oligomenorrhea or secondary amenorrhea or young women without regular cycles may tend to remain anovulatory or to become amenorrheic after OC discontinuation. Women with these preexisting problems should be advised of this and encouraged to use other contraceptive methods. Post-use anovulation, possibly prolonged, may occur in women without previous irregularities. A higher incidence of galactorrhea and of pituitary tumors (e.g., adenomas) has been associated with amenorrhea in former users compared with nonusers. One study reported a 16-fold increased incidence of pituitary prolactin-secreting tumors among patients with postpill amenorrhea when galactorrhea was present. 11. *Infertility*. There is evidence of impairment of fertility in women discontinuing OCs in comparison with other contraceptive methods, which appears to be independent of duration of use. While impairment diminishes with time, there is an appreciable difference in the results in nulliparous women for OC and other groups 30 months after discontinuation of birth control. For parous women the difference is not apparent 30 months after cessation of contraception. 12. *Ectopic Pregnancy*. Ectopic as well as intrauterine pregnancy may occur in OC failure. In progestogen-only OC failures, the ratio of ectopic to intrauterine pregnancies is higher than in nonusers, since the drugs are more effective in preventing intrauterine than ectopic pregnancies. 13. *Breast Feeding*. OCs in the postpartum period may interfere with lactation by decreasing quantity and quality of breast milk. A small fraction of OC hormonal agents has been identified in milk of mothers receiving OCs. Effects, if any, on the breast-fed child have not been determined. If feasible, defer OC use until the infant has been weaned.

Precautions *GENERAL* 1. Take a complete medical and family history before starting OCs. Pretreatment and periodic physical exams should include special reference to blood pressure, breasts, abdomen and pelvic organs, including Papanicolaou smear and relevant lab tests. As a general rule, OCs should not be prescribed for longer than 1 year without another physical. 2. Under the influence of estrogen-progestogen preparations, preexisting uterine leiomyomata may enlarge. 3. Observe patients with a history of psychic depression and discontinue OCs if depression recurs to a serious degree. Patients becoming significantly depressed while taking OCs should stop the OC and use an alternate method of contraception to determine whether the symptom is drug related. 4. OCs may cause some fluid retention. Prescribe with caution, and only with careful monitoring, in patients with conditions that might be aggravated by fluid retention, such as convulsive disorders, migraine syndrome, asthma or cardiac, hepatic or renal insufficiency. 5. Patients with a past history of jaundice during pregnancy have an increased risk of recurrence while using OCs. Discontinue OC if jaundice develops. 6. Steroid hormones may be poorly metabolized in patients with impaired liver function and should be administered with caution in such patients. 7. OC users may have disturbances in normal tryptophan metabolism that may result in a relative pyridoxine deficiency. The clinical significance is unknown. 8. Serum folate levels may be depressed by OC use. Since the pregnant woman is predisposed to folate deficiency and incidence of folate deficiency increases with increasing gestation, if a woman becomes pregnant shortly after stopping OCs, she may have a greater chance of developing folate deficiency and related complications. 9. Advise the pathologist of OC use when relevant specimens are submitted. 10. Certain endocrine and liver function tests and blood components may be affected by estrogen-containing OCs. For example: a. Increased sulfobromophthalein retention. b. Increased prothrombin and factors VII, VIII, IX, and X; decreased antithrombin 3; increased norepinephrine-induced platelet aggregability. c. Increased thyroid binding globulin (TBG) leading to increased circulating total thyroid hormone, as measured by protein-bound iodine (PBI), T4 by column, or T4 by radioimmunoassay. Free T3 resin uptake is decreased, reflecting the elevated TBG; free T4 concentration is unaltered. d. Decreased pregnanediol excretion. e. Reduced response to metyrapone test. f. Increased phospholipids and triglycerides. g. Temporarily decreased glucose tolerance. 11. Contact lens wearers who develop visual changes or changes in lens tolerance should be assessed by an ophthalmologist and temporary or permanent cessation of wear considered. DRUG INTERACTIONS. OCs may be less effective and there may be increased breakthrough bleeding from interactions with rifampin, isoniazid, ampicillin, tetracycline, neomycin, penicillin V, chloramphenicol, sulfonamides, nitrofurantoin, barbiturates, phenytoin, primidone, analgesics, tranquilizers, antimigraine preparations, antihistamines, and griseofulvin. OCs may alter effectiveness of such other drugs as oral anticoagulants, anticonvulsants, tricyclic antidepressants, antihypertensive agents (e.g., guanethidine), vitamins, hypoglycemic agents, tranquilizers, hypnotic preparations, theophylline, and beta blockers. *CARCINOGENESIS* See Warnings. *PREGNANCY* Pregnancy category X. See Contraindications and Warnings. *NURSING MOTHERS* See Warnings.

Adverse Reactions An increased risk of the following serious adverse reactions has been associated with OC use (see Warnings): thrombophlebitis, thrombosis, pulmonary embolism, coronary thrombosis, cerebral thrombosis, mesenteric thrombosis, liver tumors, cerebral hemorrhage, hypertension, gall bladder disease, congenital anomalies, neuro-ocular lesions, e.g., retinal thrombosis and optic neuritis, Raynaud's disease, arterial thromboembolism. The following adverse reactions have been reported in OC users and are believed to be drug related: bleeding irregularities (breakthrough bleeding, spotting, missed menses during treatment, amenorrhea after treatment), gastrointestinal symptoms (nausea, vomiting, bloating, abdominal cramps, colitis), dysmenorrhea, infertility after discontinuance of treatment, edema, chloasma or melasma which may persist after drug is discontinued, breast changes (tenderness, enlargement, and secretion), intolerance to contact lenses, changes in corneal curvature (steepening), change in weight (increase or decrease), change in cervical erosion and cervical secretion, possible diminution of lactation when given immediately postpartum, cholestatic jaundice, migraine, increase in size of uterine leiomyomata, rash (allergic), mental depression, reduced tolerance to carbohydrates, vaginal candidiasis, prolactin-secreting pituitary tumors, chilblains. The following adverse reactions have been reported in OC users and the association has been neither confirmed nor refuted: premenstrual-like syndrome, cataracts, changes in libido, chorea, changes in appetite, cystitis-like syndrome, headache, nervousness, dizziness, hirsutism, loss of hair, erythema multiforme, erythema nodosum, hemorrhagic eruptions, vaginitis, porphyria, impaired renal function, malignant nephrosclerosis (hemolytic uremic syndrome), malignant hypertension, acute renal failure. **Information for the Patient** (See Patient Package Insert)

Rev. 8/85

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